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Portland Study Element II
I/M Effectiveness Study

Hamilton Test Systems, Inc.
Phoenix, AZ

Prepared for

Environmental Protection Agency
Ann Arbor, MI

May 79

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16. ABSTRACT

An exhaust emissions test program was conducted in Portland, Oregon on a sample of privately-owned 1972-77 model year automobiles. The objective of the study was to collect data on the effectiveness of a mandatory vehicle exhaust inspection/maintenance (I/M) program.

Cars were recruited from Portland, where they are subject to the Oregon vehicle inspection program, and from Eugene, where they are not. The Eugene cars thus served as the experimental control. The Portland and Eugene fleets were identical in make, model, and model year mix, both representative of the Oregon automobile population of the model years tested. The Portland fleet consisted of equal numbers of cars passing and failing the state inspection when initially recruited.

Each car was tested in as-received condition, initially and at 3-month intervals for a year. Portland fail cars were also tested after maintenance. The test sequence included the state idle test, two Federal short tests, the 75 FTP, and the Highway Fuel Economy Test. Complete engine diagnostic checks and owner interviews regarding maintenance were also conducted at each sequence.

Emissions and fuel economy data are presented for all tests on every car in the program.

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I/M EFFECTIVENESS STUDY

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Contract No. 68-03-2513

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Prepared for

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Mobile Source Air Pollution Control
Emission Control Technology Division
Ann Arbor, Michigan 48105

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ABSTRACT

An exhaust emissions study was conducted on a sample of 1972-77 model year vehicles recruited from private owners in the metropolitan areas of Portland and Eugene, Oregon.

The purpose of the study was to collect data that could be used to determine the effectiveness of a mandatory vehicle exhaust emission inspection/maintenance (I/M) program. The Portland-area cars are subject to the Oregon I/M program; the Eugene cars, not subject to I/M, served as the experimental control.

The Portland and Eugene fleets were identical with respect to the make, model, and model year mix, and both were representative of the Oregon automobile population of the model years tested. The Portland fleet consisted of equal numbers of cars that passed the state inspection and cars that failed the state inspection when initially recruited.

Each car in the program was tested in as-received condition, initially and then at three-month intervals for a year. Portland fail cars were also tested after maintenance (owner's responsibility) sufficient to enable them to pass the state inspection. The test sequences included idle-mode tests, Federal Three-Mode Test, Federal Short Cycle Test, Federal Test Procedure, and Highway Fuel Economy Test. Each test sequence also included a complete engine diagnostic inspection and owner interview regarding vehicle maintenance.

A total of 3220 test sequences were conducted on 715 vehicles.

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1.0 INTRODUCTION

The U. S. Environmental Protection Agency (EPA), by authority provided by the Clean Air Act, is responsible for the control and prevention of air pollution. One of the major sources of air pollution is the motor vehicle, and EPA has developed new-vehicle emission standards and other strategies for reducing the amount of pollution from this source.

One method of reducing air pollution is to adopt at the state level inspection and maintenance programs for in-use vehicles. Inspection/ Maintenance (I/M) may be defined as a strategy to 1) identify in-use motor vehicles which are gross polluters, that is, which emit pollutants at rates several times the applicable Federal standards; and 2) cause them to be adjusted or repaired so that pollutant emission rates are reduced to levels that approach the standards. The technique requires periodic inspection of most or all vehicles in an area. Only those which fail the inspection must be repaired.

The concept of Inspection/Maintenance is based on the fact that properly equipped (emission controls) and properly tuned motor vehicles emit less pollutants than improperly tuned vehicles and/or those with defective or missing emission control equipment. The challenge is to identify the latter and cause them to be repaired.

To date, all states with active I/M programs use (pass/fail) standards which are set to be no more stringent than the emissions levels that would exist if a vehicle were tuned to manufacturer's specifications. Typically, there are families of standards which are sensitive to vehicle make, model, engine size and age. For example, older pre-emission control vehicles do not have to meet the same standards as newer vehicles. Standards are established for emissions of carbon monoxide and hydrocarbons, and in some areas, for oxides of nitrogen (NO_x).

Typically, state I/M programs consist of short inspection tests which rapidly and economically test a vehicle and provide reasonably accurate emission results. The EPA has the responsibility for determining the degree of effectiveness of inspection tests and resultant maintenance on the emissions of the in-use vehicle fleet. A strong corollary to this requirement is the determination of the deterioration of the emissions of the in-use fleet after inspection and maintenance.

As part of the effort to determine the effectiveness of inspection and maintenance, Contract No. 68-03-2513 (Element II) was awarded Hamilton Test Systems, Incorporated (HTS) to perform a series of emission tests including a number of short tests and the Federal Test Procedures. The EPA prescribed the vehicles to be tested, the test procedures, and the methods of processing the data. No indepth analysis or interpretation of test results was included in the Contract. This report describes the tests conducted and presents the data obtained under Contract No. 68-03-2513 (Element II).

2.0 SUMMARY

The intention of the Element II test program was to collect exhaust emissions data from in-use vehicles that are subject to a mandatory I/M program. These data could then be used to determine the effectiveness of I/M in reducing automobile exhaust emissions.

In order to gather the desired information, the EPA awarded a contract to HTS to test several hundred cars in Portland, Oregon, where the State of Oregon Department of Environmental Quality (DEQ) has been operating a mandatory I/M program since 1975.

To satisfy the requirements of Contract No. 68-03-2513, HTS established a complete emissions test laboratory within three miles of the DEQ Vehicle Inspection Station on St. Helens Road in Portland, Oregon. The Laboratory consists of two chassis dynamometer test cells with constant-volume sampling (CVS) equipment adjacent to a controlled temperature (soak) area with a capacity for up to 24 vehicles. Fuel tanks (including a 10,000 gallon Indolene underground tank), computers, office facilities, gas-bottle facilities, meteorology equipment and automotive diagnostic equipment were also included as part of the Laboratory. The Laboratory was normally operated on a two-cell, multiple shift basis for the duration of the Element II testing which spanned the period from October, 1977 through March, 1979.

HTS equipped the DEQ St. Helens Road station with a test cell identical to those installed in the HTS laboratory. Through an agreement between EPA and DEQ, three DEQ motor vehicle inspectors were assigned to work on this program and were trained by HTS to conduct two Federal short inspection tests on vehicles recruited into the Element II program, using the HTS-furnished CVS test cell.

EPA's test program called for 600 privately-owned cars to be recruited for testing at three-month intervals for one year. The fleet was to consist of equal numbers of Portland-area cars that passed the DEQ inspection, Portland-area cars that failed the DEQ inspection, and cars from Eugene, Oregon. The Eugene cars would serve as the experiment "control," since there is no vehicle I/M program in Eugene. Comparing the emissions of the Portland and Eugene cars would contribute to the evaluation of I/M effectiveness. Each of the three major groups was to be divided equally between 1972-74 model years and 1975-77 model years in a mix that would represent the Oregon automobile population.

The cars were recruited from private owners in the Portland and Eugene areas. The owners were contacted by mail and telephone to arrange the loan of their cars for two to three days for testing. As incentives for participation the owners were given a loaner car and savings bonds, and their cars were returned to them with a full tank of gasoline.

Initially all vehicles were driven to the DEQ station where they were subjected to the DEQ inspection, which includes an idle emissions test (referred to as the SIT in this report). Following the DEQ inspection the vehicles were moved to the CVS test cell at the DEQ station for the Federal Three-Mode (F3M) test and Federal Short Cycle (FSC) test conducted by the DEQ inspectors. After these tests were completed, the vehicles were returned to the HTS laboratory for the following sequence of operations:

1) Repeat SIT
2) Complete engine diagnostic inspection
3) Preconditioning for the 1975 Federal Test Procedure (75 FTP)
4) 75 FTP
5) Highway Fuel Economy Test (HFET)
6) Hot Start FTP (HSFTP)
7) FSC
8) F3M

Steps 7) and 8) were not conducted on Eugene vehicles.

After completing this test sequence, Portland pass and Eugene cars were returned to their owners. Retest sequences, consisting of steps 1) through 6), were performed at three-month intervals for one year.

Portland fail cars were returned to their owners with the request to obtain the repairs that would enable the car to pass the DEQ inspection. Repairs were entirely the responsibility of the owners. The savings bond incentives were considered sufficient to cover repair costs. Following repairs, the Portland fail vehicles were brought back to HTS for further testing. Each vehicle was again subjected to the DEQ inspection to ensure that the vehicle passed. If a vehicle still failed, it was returned to the owner for further repairs. After passing the DEQ inspection, each vehicle was subjected to steps 1 through 6 shown in the above test sequence. Following this retest after maintenance, Portland fail vehicles were retested at 3-month intervals as described for the pass and Eugene vehicles.

All data were collected in Vehicle Test Packets and submitted to the EPA Project Officer. The data were also transcribed onto flexible discs (a magnetic medium) and transmitted to EPA computer files via telephone.

This report contains the results for each test of each vehicle and summary statistics for each group of vehicles including the mean and standard deviations of the emissions measurements. No conclusions from or interpretations of the data are reported as none were called for in the Contract.

3.0 PROGRAM OBJECTIVE

The objective of the Element II program was to gather vehicle emissions data and maintenance information to determine the effectiveness of the State's mandatory inspection and maintenance program. The effectiveness was to be determined by measuring the exhaust emissions of vehicles after inspection and maintenance and thereafter quarterly for a one-year period. Two-thirds of the vehicles were to be recruited from the Portland area, which is subject to the State's inspection and maintenance program. These vehicles were to be divided into two groups containing equal numbers of vehicles that passed and vehicles that failed the inspection. To assist in the evaluation, the remaining third of the vehicles were recruited from Eugene, Oregon, an area not subjected to the State's inspection program. The makeup of the test fleets from the two areas was similar. Thus a comparison could be made of the emissions of vehicles from areas with and without inspection and maintenance. The vehicles were selected from model years 1972-77.

4.0 PROGRAM DESIGN

The Element II program was designed to conduct emission tests on 600 1972-1977 in-use vehicles over a one-year period. Four hundred of these vehicles were to be recruited from the Portland Metropolitan Service District (MSD)* where inspection and maintenance (I/M) is required and 200 were to be selected from Eugene, Oregon where I/M is not required. Among the Portland area vehicles there were to be equal numbers of vehicles which passed and vehicles which failed the DEQ inspection.

The composition of the Element II fleet was to be a representative sample of the Oregon vehicle population (of automobiles) except that half of the vehicles were to be model years 1972-74, and half model years 1975-77. The makeup of the fleet for each model-year group represented the Oregon population of those model years.

Each vehicle recruited was first subjected to the DEQ inspection at the St. Helens Road station. In this inspection exhaust HC, CO and CO_2 are measured at idle, idle speed is measured, and a visual inspection is made for exhaust smoke and proper installation of all emission control components. Upon completion of the inspection the vehicle was driven to another area within the station where the Federal Short Cycle and the Federal Three-Mode Tests were performed by DEQ inspectors trained to perform these tests.

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*The Portland MSD is defined by the State of Oregon Department of Environmental Quality (DEQ) to encompass the Portland Metropolitan Area, excluding nearby Vancouver, Washington.

Upon completion of the testing at the DEQ station, the vehicle was driven to the HTS facility where the State Idle Test for HC and CO, with a NO_x measurement in addition, was performed. The vehicle then received a complete engine diagnostic check and was preconditioned for the Federal Test Procedure (FTP). After the required soak period, the FTP, the Highway Fuel Economy Test (HFET) and the Hot Start FTP test were performed. The Portland vehicles were also subjected to the Federal Short Cycle (FSC) and the Federal Three-Mode (F3M) tests.

An additional testing sequence was performed on all Portland area vehicles which failed the DEQ inspection, after maintenance had been performed by the owner which enabled the vehicle to pass the inspection. Typically this was after approximately two weeks. At the HTS facility the Idle test was performed along with another complete diagnostic test. Following preconditioning, the FTP, HFET and Hot Start FTP tests were repeated.

All vehicles were retested quarterly, if attainable, for four more test sequences. Each sequence included the diagnostic check, preconditioning, and the FTP, HFET and Hot Start FTP tests.

Upon completion of each test sequence and prior to returning the vehicle to the owner, one spark plug was checked for rust-colored deposits caused by the antiknock additive Methylcyclopentadienyl Manganese Tricarbonyl (MMT).

Any vehicle which could not be recruited for subsequent tests was replaced with a substitute of the same type so as to complete the Element II program with the required 3220 tests.

4.1 VEHICLE SELECTION

The fleet selection for the Element II program was intended to provide a representative sample of the Oregon automobile population of 1972-77 model years. The registration file for those model years was purchased from the Oregon Motor Vehicles Division, for the counties of Clackamas, Multnomah, Washington and Lane. These counties encompass the metropolitan areas of Portland and Eugene, Oregon. From the file a tabulation of the various vehicle types (similar vehicles were combined) was made using codes in Vehicle Identification Numbers. The tabulation yielded an apportioned matrix of vehicles. The matrix contained 72 classes of vehicles for the model years 1972-1974 and 73 classes for model years 1975-77. The matrix of vehicles selected for the Element II program is shown on Table 4.1-1.

It was anticipated that attrition of participants over a year's time would reduce the sample size. Therefore, a ten percent increase was made in the number of vehicles to be initially selected, increasing the desired quantity of Portland-area vehicles to 440 and Eugene vehicles to 220. Since it was required that the sample of Eugene vehicles be similar to the Portland-area sample, the quantity of vehicles required for each of the vehicle classes was determined by the lower Eugene requirement. The quantity of Eugene vehicles to be recruited for each class was established by determining the proportion of each class in the total Oregon population. Where the Eugene sample was between 1 and 5 for each class, the Portland sample contained 2 to 10 vehicles for each class.

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 1 of 9)

QUANTITY			MODEL			WEIGHT		"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
2	1	1	1972	AMC/Gremlin, Hornet	232, 258-1V	3000	A	10.3	13.5	6.5
1	0	1	1973	AMC/Gremlin, Hornet	232, 258-1V	3000	A	11.3	14.5	6.5
0	2	1	1974	AMC/Hornet	232, 258-1V	3000	A	11.3	14.5	6.5
0	3	1	1972	AMC/Matador	304-2V	4000	A	13.2	18.0	8.5
1	1	1	1973	Datsun/610	108, 119-2V	2500	M	9.4	12.0	5.5
1	0	1	1972	Toyota/Corolla	97-2V	2500	M	9.4	12.0	5.5
1	0	1	1974	Toyota/Corolla	97-2V	2500	M	9.4	12.0	5.5
3	0	2	1972	VW/Beetle	97-1V	2250	M	8.8	12.0	5.0
1	2	3	1973	VW/Beetle	97-1V	2250	M	8.8	12.0	5.0
2	4	3	1974	VW/Beetle	97-1V	2250	M	8.8	12.0	5.0
1	0	1	1972	Volvo/140 Series	121-2V,FI	3000	M	10.3	13.5	6.5
2	0	1	1973	Volvo/140 Series	121-2V,FI	3000	M	10.3	13.5	6.5
1	0	1	1974	Volvo/140 Series	121-2V,FI	3000	M	10.3	13.5	6.5
3	1	2	1972	Dodge, Plymouth/Dart, Valiant, Duster	198, 225-1V	3500	A	12.3	16.0	7.5
3	2	3	1973	Dodge, Plymouth/Dart, Valiant, Duster	198, 225-1V	3500	A	12.3	16.0	7.5
3	4	3	1974	Dodge, Plymouth/Dart, Valiant, Duster	198, 225-1V	3500	A	12.3	16.0	7.5
2	0	1	1972	Dodge, Plymouth/Coronet, Charger, Satellite	318-2V	4500	A	14.0	19.5	9.5
0	2	1	1973	Dodge, Plymouth/Coronet, Charger Satellite	318-2V	4500	A	14.0	19.5	9.5
1	1	1	1974	Dodge, Plymouth/Coronet, Charger, Satellite	318-2V	4500	A	14.0	19.5	9.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 2 of 9)

QUANTITY			MODEL			WEIGHT		"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
0	2	1	1972	Dodge, Plymouth/Dart, Valiant, Duster	318-2V	4000	A	13.2	18.0	8.5
1	2	1	1973	Dodge, Plymouth/Dart, Valiant, Duster	318-2V	4000	A	13.2	18.0	8.5
0	3	1	1974	Dodge, Plymouth/Dart, Valiant, Duster	318-2V	4000	A	13.2	18.0	8.5
2	0	1	1972	Dodge, Plymouth/Polara, Fury	360-2V	5000	A	14.7	21.5	10.5
1	1	1	1973	Dodge, Plymouth/Polara, Fury	360-2V	5000	A	14.7	21.5	10.5
4	4	4	1972	Ford/Pinto	122-2V	3000	A/M	10.3	13.5	6.5
3	6	4	1973	Ford/Pinto	122-2V	3000	A/M	10.3	13.5	6.5
3	4	5	1974	Ford/Pinto, Mustang II	140-2V	3000	A/M	10.3	13.5	6.5
1	1	1	1974	Ford/Mustang II	170-2V	3500	A	12.3	16.0	7.5
2	0	1	1973	Ford, Merc/Comet, Maverick	250-1V	3500	A	12.3	16.0	7.5
0	2	1	1974	Ford/Maverick	250-1V	3500	A	12.3	16.0	7.5
1	1	1	1972	Ford, Merc/Comet, Maverick, Mustang	302-2V	3500	A	12.3	16.0	7.5
0	1	1	1973	Merc/Comet	302-2V	3500	A	12.3	16.0	7.5
0	2	1	1972	Ford/Torino	302-2V	4500	A	14.0	19.5	9.5
1	3	2	1972	Ford, Merc/Torino, Montego, Cougar	351-2V	4500	A	14.0	19.5	9.5
2	2	2	1973	Ford, Merc/Torino, Montego Cougar	351-2V	4500	A	14.0	19.5	9.5
1	1	1	1974	Ford, Merc/Torino, Montego, Cougar	351-2V	4500	A	14.0	19.5	9.5
1	1	1	1972	Ford/Ford	351-2V	5000	A	14.7	21.5	10.5
1	1	1	1973	Ford/Ford	351-2V	5000	A	14.7	21.5	10.5
4	1	2	1972	Ford, Merc/Ford, Mercury	400-2V	5000	A	14.7	21.5	10.5
3	1	2	1973	Ford/Ford	400-2V	5000	A	14.7	21.5	10.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 3 of 9)

QUANTITY			MODEL					"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	WEIGHT CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
2	0	1	1974	Ford/Ford	400-2V	5000	A	14.7	21.5	10.5
4	1	2	1972	Chevrolet/Vega	140-2V	3000	A/M	10.3	13.5	6.5
0	5	3	1973	Chevrolet/Vega	140-2V	3000	A/M	10.3	13.5	6.5
0	2	1	1974	Chevrolet/Vega	140-2V	3000	A/M	10.3	13.5	6.5
2	1	1	1972	Chev, Pont/Nova, Ventura Chev, Olds/Nova, Malibu, Omega	250-1V	4000	A	13.2	18.0	8.5
0	3	1	1974		250-1V	4000	A	13.2	18.0	8.5
4	2	3	1972	Chev, Olds, Pont, Buick/LeMans, Chevelle, Monte Carlo, Cutlass, Century, Malibu	350-2V	4500	A	14.0	19.5	9.5
5	1	3	1973		350-2V	4500	A	14.0	19.5	9.5
4	2	2	1974		350-2V	4500	A	14.0	19.5	9.5
2	2	2	1972	Chev/Impala, Chev Wagon	350-2V	5000	A	14.7	21.5	10.5
2	1	2	1973	Chev/Bel Air, Impala,	350-2V	5000	A	14.7	21.5	10.5
0	2	1	1972	Cadillac/DeVille	472-4V	5500	A	15.3	22.5	11.5
0	2	1	1973	Cadillac/DeVille	472-4V	5500	A	15.3	22.5	11.5
2	1	1	1974	Cadillac/DeVille	472-4V	5500	A	15.3	22.5	11.5
3	1	2	1972	Pont, Olds, Buick/Delta 88 Custom Cruiser, LeSabre, Electra, Rivera, Bonneville, Safari Centurion	455-4V	5500	A	15.3	22.5	11.5
2	2	2	1973		455-4V	5500	A	15.3	22.5	11.5
1	0	1	1974		455-4V	5500	A	15.3	22.5	11.5
0	2	1	1972	Chev/Nova	307-2V	4000	A	13.2	18.0	8.5
2	0	0	1973	Chev/Nova	307-2V	4000	A	13.2	18.0	8.5
1	1	1	1972	Buick, Olds/Century, Cutlass Vista Cruiser	350-4V	4500	A	14.0	19.5	9.5
3	1	2	1973		350-4V	4500	A	14.0	19.5	9.5
3	0	2	1974		350-4V	4500	A	14.0	19.5	9.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 4 of 9)

QUANTITY PASS	QUANTITY FAIL	QUANTITY EUG	MODEL YEAR	MAKE/MODEL	ENG/CARB	WEIGHT CLASS	TRANS	"ACTUAL HP SETTINGS" FTP 50 MPH	"ACTUAL HP SETTINGS" F3M 52 MPH	"ACTUAL HP SETTINGS" F3M 25 MPH
0	4	2	1972	Chev, Pont/Impala, Caprice, Chev Wgn, Safari	400-2V	5000	A	14.7	21.5	10.5
3	0	2	1973	Chev/Impala, Caprice	400-2V	5000	A	14.7	21.5	10.5
1	0	1	1974	Chev/Impala, Caprice	400-2V	5000	A	14.7	21.5	10.5
1	0	1	1973	Chev/Nova	350-2V	4000	A	13.2	18.0	8.5
1	0	1	1974	Chev/Nova, Camaro	350-2V	4000	A	13.2	18.0	8.5
1	1	1	1973	Plymouth/Fury	400-2V	5000	A	14.7	21.5	10.5
0	2	1	1972	Datsun/LB110	72-2V	2500	M	9.4	12.0	5.5
3	2	3	1972	Datsun/PL510	97-2V	2500	M	9.4	12.0	5.5
2	1	1	1974	Datsun/HLB210	79-2V	2500	M	9.4	12.0	5.5
0	2	1	1974	Ford/Pinto	122-2V	2500	A/M	9.4	12.0	5.5
113	106	113	1972-1974 Totals							

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 5 of 9)

QUANTITY			MODEL			WEIGHT		"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
1	1	1	1975	AMC/Hornet, Pacer	232, 258-1V	3000	A	11.3	14.5	6.5
2	2	3	1976	AMC/Gremlin, Hornet, Pacer	232, 258-1V	3000	A	11.3	14.5	6.5
0	3	1	1975	Audi/Fox	97-FI	2500	M	7.0	10.5	5.5
1	2	1	1976	Audi, VW/Fox, Dasher	97-FI	2500	M	8.0	11.0	5.5
1	2	1	1977	Audi, VW/Fox, Dasher	97-FI	2500	M	8.0	11.0	5.5
1	1	2	1975	Honda/Civic	76-2V	2000	M	8.3	10.5	4.5
1	1	2	1976	Honda/Civic	76-2V	2000	M	8.3	10.5	4.5
2	0	1	1977	Honda/Civic	76-2V	2000	M	8.3	10.5	4.5
2	0	1	1975	Honda/Civic, CVCC	91-3V	2000	M	8.3	10.5	4.5
2	1	2	1976	Honda/Civic, CVCC	91-3V	2000	M	8.3	10.5	4.5
0	2	1	1976	Dodge/Colt	98-2V	2500	M	9.4	12.0	5.5
4	1	2	1975	Datsun/B210	85-2V	2250	M	8.8	12.0	5.0
4	2	3	1976	Datsun/B210	85-2V	2250	M	8.8	12.0	5.0
1	1	3	1977	Datsun/B210	85-2V	2250	M	8.8	12.0	5.0
3	1	2	1975	Toyota/Corolla	97-2V	2500	M	9.4	12.0	5.5
7	0	3	1976	Toyota/Corolla, SR5	97-2V	2500	M	9.4	12.0	5.5
5	0	2	1977	Toyota/Celica	133-2V	2750	M	7.7	11.5	6.0
2	1	1	1975	VW/Beetle	97-FI	2250	M	8.8	12.0	5.0
3	3	2	1976	VW/Rabbit	97-1V	2250	M	7.3	10.0	5.0
0	4	1	1977	VW/Rabbit, Scirocco	97-1V	2250	M	7.3	10.0	5.0
2	0	1	1976	Volvo/240	130-FI	3500	M	11.2	15.5	7.5
3	5	3	1975	Dodge, Plymouth/Dart, Valiant, Duster	225-1V	3500	A	12.3	16.0	7.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 6 of 9)

QUANTITY			MODEL			WEIGHT		"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
1	4	3	1976	Dodge, Plymouth/Dart, Valiant, Duster Aspen, Volare	225-1V	4000	A	13.2	18.0	8.5
2	2	2	1977	Dodge, Plymouth/Aspen, Volare	225-2V	4000	A	13.2	18.0	8.5
1	1	1	1975	Plymouth/Fury	318-2V	4500	A	14.0	19.5	9.5
1	1	1	1976	Dodge, Ply/Aspen, Volare	318-2V	4000	A	13.2	18.0	8.5
4	1	2	1977	Dodge, Ply/Aspen, Volare	318-2V	4000	A	13.2	18.0	8.5
0	2	1	1975	Chrys, Dodge/Cordoba, Coronet	360-2V	4500	A	14.0	19.5	9.5
0	4	1	1976	Chrys/Cordoba	360-2V	4500	A	14.0	19.5	9.5
3	1	2	1975	Ford, Merc/Pinto, Mustang II, Bobcat	140-2V	3000	A/M	10.3	13.5	6.5
6	1	3	1976	Ford, Merc/Pinto, Mustang II, Bobcat	140-2V	3000	A/M	10.3	13.5	6.5
1	1	1	1975	Ford, Merc/Pinto, Mustang II	171-2V	3500	A	11.2	15.5	7.5
1	1	2	1976	Ford, Merc/Pinto, Mustang II	171-2V	3500	A	11.2	15.5	7.5
3	2	2	1975	Ford, Merc/Maverick, Granada, Comet	250-1V	4000	A	13.2	18.0	8.5
3	1	3	1976	Ford, Merc/Maverick, Granada, Comet Monarch	250-1V	4000	A	13.2	18.0	8.5
4	0	2	1975	Ford, Merc/Granada, Monarch	302-2V	4000	A	13.2	18.0	8.5
1	2	2	1976	Ford, Merc/Maverick, Granada, Comet Monarch	302-2V	4000	A	13.2	18.0	8.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 7 of 9)

QUANTITY			MODEL					"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	WEIGHT CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
2	3	2	1975	Ford, Merc/Torino, Montego, Cougar	351-2V	4500	A	14.0	19.5	9.5
1	1	1	1976	Ford, Merc/Torino, Montego, Cougar	351-2V	4500	A	14.0	19.5	9.5
3	0	1	1975	Ford/Elite, LTD	351-2V	5000	A	14.7	21.5	10.5
2	0	1	1976	Ford/Elite, LTD	351-2V	5000	A	14.7	21.5	10.5
1	1	1	1975	Ford, Merc/Ford, Elite, Merc	400-2V	5000	A	14.7	21.5	10.5
1	1	1	1976	Ford/Elite, LTD	400-2V	5000	A	14.7	21.5	10.5
0	2	1	1977	Ford, Merc/Granada, Monarch	250-1V	4000	A	13.2	18.0	8.5
2	5	3	1977	Ford, Merc/Maverick, Granada Monarch	302-2V	4000	A	13.2	18.0	8.5
4	0	3	1977	Ford, Merc/T-Bird, LTD-II, Cougar	400-2V	5000	A	14.7	21.5	10.5
1	4	3	1975	Chev/Vega, Monza	140-2V	3000	A/M	10.3	13.5	6.5
1	1	1	1976	Chev/Vega, Monza	140-2V	3000	A/M	10.3	13.5	6.5
0	2	1	1975	Chev/Nova	250-1V	4000	A	13.2	18.0	8.5
1	3	3	1976	Chev/Nova, Camaro, Malibu	250-1V	4000	A	13.2	18.0	8.5
1	3	2	1975	Chev/Malibu, Camaro, Monte Carlo	350-2V	4500	A	14.0	19.5	9.5
3	4	3	1976	Chev/Malibu, Camaro, Monte Carlo	350-2V	4500	A	14.0	19.5	9.5
1	2	1	1975	Chev/Impala	350-2V	5000	A	14.7	21.5	10.5

ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 8 of 9)

QUANTITY			MODEL			WEIGHT		"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
0	2	1	1976	Chev/Monza, Nova, Camaro LT	305-2V	4000	A	13.2	18.0	8.5
0	2	1	1976	Chev/Malibu	305-2V	4500	A	14.0	19.5	9.5
2	0	1	1976	Chev/Chevette	85, 98-1V	2250	A/M	8.8	12.0	5.0
1	1	1	1975	Olds/Cutlass Wagon, Olds 88	350-4V	5000	A	14.7	21.5	10.5
3	1	1	1976	Buick, Olds/Cutlass Wagon, LeSabre, Olds 88, Century Wagon	350-4V	5000	A	14.7	21.5	10.5
1	1	2	1975	Pont, Olds, Buick/LeSabre, Electra, Riviera, 98, Custom Cruiser Estate Wagon, Pont	455-4V	5500	A	15.3	22.5	11.5
1	1	1	1976	Pont, Buick/Electra, Riviera, Grand Prix	455-4V	5500	A	15.3	22.5	11.5
1	2	2	1976	Buick/Century, Skylark	231-2V	4000	A	13.2	18.0	8.5
2	0	0	1976	Cadillac/Seville	350-FI	4500	A	14.0	19.5	9.5
0	3	1	1977	Chev/Nova	250-1V	4000	A	10.3	15.5	8.5
1	9	6	1977	Chev/Chev, Malibu, Monte Carlo, Caprice	305-2V	4000	A	11.3	16.5	8.5
1	6	3	1977	Chev/Malibu, Monte Carlo, Caprice, Impala	350-4V	4000	A	11.3	16.5	8.5
0	2	2	1977	Pont/Pont Wagon, Grand Prix	301-2V	4500	A	10.8	17.0	9.5
0	2	1	1977	Buick/Electra, Riviera, 98	403-4V	4500	A	11.8	18.0	9.5

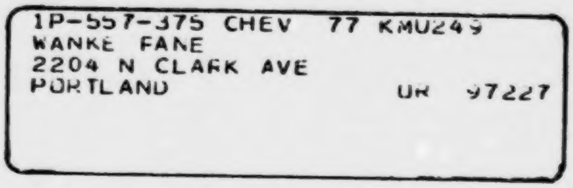
ELEMENT II VEHICLE SELECTION

Table 4.1-1

(Sheet 9 of 9)

QUANTITY			MODEL					"ACTUAL HP SETTINGS"		
PASS	FAIL	EUG	YEAR	MAKE/MODEL	ENG/CARB	WEIGHT CLASS	TRANS	FTP 50 MPH	F3M 52 MPH	F3M 25 MPH
0	5	1	1977	Olds, Buick/Cutlass, Regal	231-2V	4000	A	11.3	16.3	8.5
3	4	3	1977	Olds/Cutlass	350-4V	4500	A	10.8	17.0	9.5
2	0	1	1975	Toyota/Corona	133-2V	3000	M	10.3	13.5	6.5
2	0	1	1976	Toyota/Corona	133-2V	3000	M	11.3	14.5	6.5
0	3	1	1975	Cadillac/Deville	500-4V	5500	A	15.3	22.5	11.5
1	1	1	1976	Cadillac/Deville	500-4V	5500	A	15.3	22.5	11.5
123	134	126	1975-1977 Totals							
113	106	113	1972-1974 Totals							
236	240	239	Program Totals							

Once the matrix of vehicles was established a mailing list was generated which provided approximately 15 names of owners for each vehicle required. Along with the mailing list, mailing labels and vehicle identification labels (see figure 4.1-1) were generated to assist in the recruitment process.



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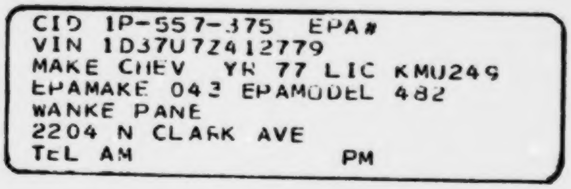
1P-557-375 CHEV  77 KMU249
WANKE FANE
2204 N CLARK AVE
PORTLAND            OR  97227
```

Mailing Label



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CID 1P-557-375  EPA#
VIN 1D37U7Z412779
MAKE CHEV  YR 77 LIC KMU249
EPAMAKE 043 EPAMODEL 482
WANKE PANE
2204 N CLARK AVE
TEL AM             PM
```

Vehicle Identification Label

Figure 4.1-1

4.2 VEHICLE RECRUITMENT

The initial contact with a prospective participant was via an introductory letter and return mailer. A copy of each is shown (Figures 4.2-1 and 4.2-2). The planned capture rate was 10%, however the actual rate was approximately 20%. The main reason for the higher capture rate was thought to be the attractive incentives. Each participant received a United States Savings Bond per the schedule shown below, a current model loan vehicle, and a full tank of gas upon return of his vehicle.

	Bond Face Value	
	Portland	Eugene
Initial Test:	$25.00	$50.00
*Retest Following Maintenance:	$25.00	
1st Quarterly Retest:	$50.00	$50.00
2nd Quarterly Retest:	$50.00	$50.00
3rd Quarterly Retest:	$75.00	$75.00
4th Quarterly Retest:	$100.00	$150.00

The loan fleet consisted of Cadillacs, Monte Carlos, Granadas, Monarchs, Cutlasses, Camaros, Firebirds, Impalas, and Caprices.

All participants were interviewed before testing was initiated on their vehicles. Upon arrival at the HTS office the vehicle was inspected to assure that there were no apparent exhaust leaks or other defects which would make the vehicle unfit for testing. Upon determination that the vehicle was acceptable, the interview was conducted. The Element II

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*The retest following maintenance applied to participants whose vehicle failed the initial State inspection test.

HAMILTON TEST SYSTEMS

P. O. Box 10718 • Portland, Oregon 97210

Dear Automobile Owner:

Your car is one of a very few in this area being considered for a special test program sponsored by the U.S. Environmental Protection Agency (EPA) in cooperation with the Oregon Department of Environmental Quality. This program consists of performing tests on automobiles to measure their exhaust emissions and is being conducted under contract to the EPA by Hamilton Test Systems.

If your car is chosen, you will receive up to $300.00 in U.S. Savings Bonds. In return, you will be asked to loan your car to us for two to three days every three months for a year. We will bring it back each time with a full tank of gasoline, and will provide a free 1977 loan car during the test periods.

You will be contacted by telephone in the next few days to determine your interest in volunteering for this special project. The person calling will explain how the program works and the benefits you will receive if your car is selected. In the meantime, you can help us by filling out the enclosed pre-paid postcard for our information.

Sincerely,

David A Smith

David A. Smith
Project Director

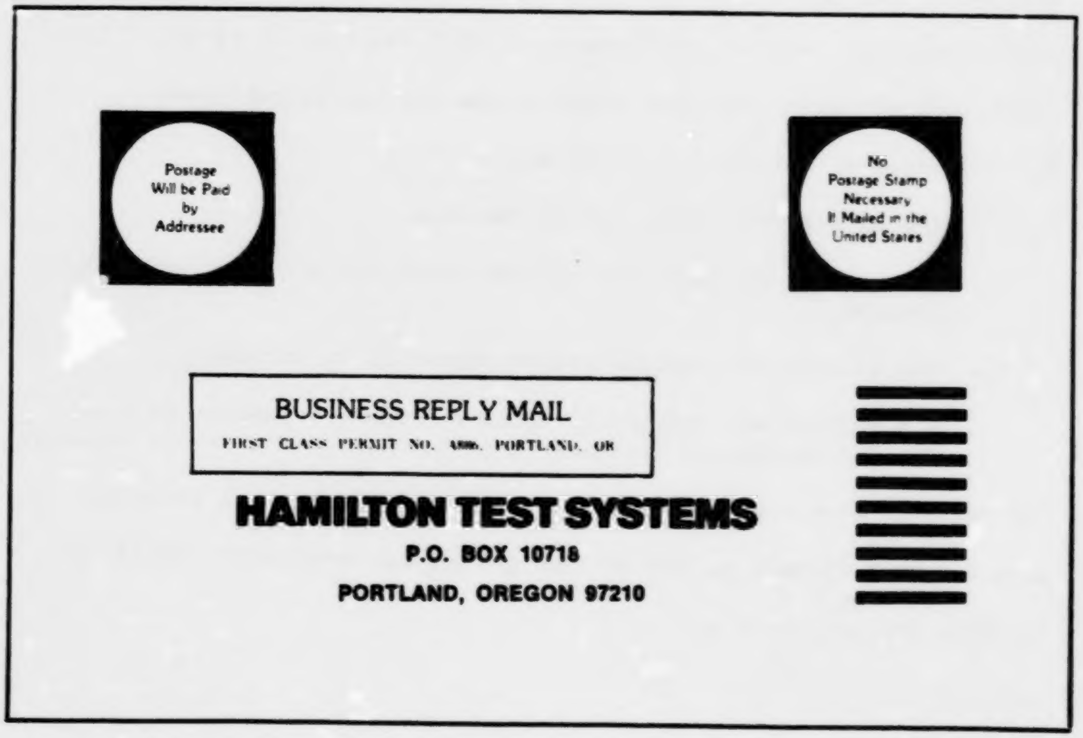
Figure 4.2-1

Subsidiary of
UNITED
TECHNOLOGIES

☐ I have a listed telephone. In addition to my listed phone, I can be reached at ____________________

☐ I am interested in the special inspection program but have no telephone or an unlisted telephone. Please contact me at ____________________
____

☐ I do not wish to be considered for the special inspection program. Please do not contact me.


Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. [illegible], PORTLAND, OR

HAMILTON TEST SYSTEMS
P.O. BOX 10718
PORTLAND, OREGON 97210

Figure 4.2-2

participants were requested to agree to the following:

- keep accurate records of all vehicle maintenance;
- promise to maintain vehicle in the same manner as in the past;
- promise not to reveal to repair personnel the vehicle's participation in the program;
- stay in the program for a full year.

Also as part of the interview the participant provided the necessary information to complete an EPA questionnaire regarding vehicle usage and maintenance.

As part of retest sequences throughout the program the vehicle was inspected and a maintenance questionnaire was completed.

As a result of a higher than expected attrition rate (over 15 percent), additional vehicles beyond the original 660 were recruited in order to assure that the contract requirement of 3220 tests would be met. Each added vehicle was of the same class as the vehicle it replaced. The main reasons for the attrition were:

- the participant moved out of the area.
- the vehicle was sold and the new owner was not interested in the program.
- the vehicle was damaged beyond repair in an accident.
- the participant refused to spend the money necessary to pass the DEQ inspection (required for the maintenance retest sequence).

715 vehicles were eventually recruited into the Element II program. The actual number in each of the various groups and subsequent retests is as shown on the next page.

			Quarterly Retests				
	Initial	Maint. Retests	1st	2nd	3rd	4th	Total
1972-74 Pass	113	-	108	106	103	97	527
1972-74 Fail	106	95	94	91	84	77	547
1972-74 Eugene	113	-	98	93	88	80	472
1975-77 Pass	123	-	121	107	101	94	546
1975-77 Fail	134	117	114	105	88	83	641
1975-77 Eugene	126	-	113	95	78	75	487
Total:	715	212	648	597	542	506	3220

Note

In an effort to improve the data base of Element II, fifty (50) additional retests were performed after the termination of Contract No. 68-03-2513. These retests were conducted between August 1979 and January 1980 under Contract No. 68-03-2829. For the purpose of continuity, the test results for the additional fifty retests are included in this report. The updated summary of the total tests included in this report is as follows:

			Quarterly Retests				
	Initial	Maint. Retests	1st	2nd	3rd	4th	Total
1972-74 Pass	113	-	108	106	103	97	527
1972-74 Fail	106	95	94	91	84	77	547
1972-74 Eugene	113	-	98	93	88	80	472
1975-77 Pass	123	-	121	115	111	105	575
1975-77 Fail	134	117	114	106	98	93	662
1975-77 Eugene	126	-	113	95	78	75	487
Total:	715	212	648	606	562	527	3270

4.3 FACILITIES AND EQUIPMENT

4.3.1 DEQ Vehicle Inspection Station

The DEQ inspection station used in the program was located at 4621 N.W. St. Helens Road. The Idle Test was performed in the normal inspection lanes. The Federal Three-Mode and Federal Short Cycle tests were performed in a separate area within the station where a complete CVS cell was installed. The CVS control unit and the gas analysis instrumentation were located in an enclosed temperature controlled room. The dynamometer and CVS metering unit were located in an open area which was not temperature controlled. This configuration simulated a "real world" inspection station environment for the two Federal short tests being evaluated. Communication between the driver and the instrumentation technician was through headsets.

4.3.2 Hamilton Test Systems Facility

The HTS facility was located at 1421 N.W. 14th Avenue. The facility contained 15,000 square feet of useable laboratory space and 3,000 square feet of office space. The laboratory contained a soak area, a CVS test area, a diagnostic area, and a vehicle fueling area.

4.3.2.1 Office Area

This area was used for the functions of vehicle recruitment and participant interviewing, quality control and data processing, and general office management.

4.3.2.2 Test Vehicle Soak Area

An area for storing or "cold soaking" up to twenty-five vehicles was provided. The temperature within this area was maintained between $20^\circ - 30^\circ$ C ($68^\circ - 86^\circ$ F) and was continuously monitored by chart recorders when any vehicle was in soak.

4.3.2.3 CVS Test Area

The CVS test area contained two completely independent sets of CVS equipment. Each set consisted of a dynamometer, sample system, and an analytical system. An enclosure within this area was used to store all the calibration and working gases.

4.3.2.4 Ventilation and Exhaust Considerations

The facility ventilation and exhaust system was designed to minimize the HC and CO background levels within the laboratory. Each test cell contained a 5,000 cfm exhaust fan and this coupled with two 6,000 cfm intake fans maintained good ventilation for each of the cells. All vehicle exhaust was directly vented to the outside. The final result was the achievement of background levels of less than 10 ppm of HC and CO, as required by the contract.

4.3.2.5 Diagnostic Test Area

The diagnostic area provided space for testing two vehicles. The area was isolated from the rest of the laboratory and was not temperature controlled. Two Autosense Diagnostic Systems and one EPA-furnished NO_x analyzer were located in this area for the performance of the Idle Test and the required diagnostic checks.

4.3.2.6 Fuel Area

A 10,000 gallon in-ground tank was used for storing the Indolene test fuel. The fuel was disbursed and metered by a standard gas pump. Two separate 250 gallon in-ground storage tanks were used for draining and post-test fillups. One tank was dedicated for unleaded fuel and the other for recovery of either regular or premium fuel.

4.3.3 Constant Volume Sampler (CVS)

The three Constant Volume Samplers were Critical Flow Venturi (CFV) systems manufactured by Horiba Instruments (Model CVS 20). The significant design improvements of this type of system over conventional CVS concepts are the use of the Critical Flow Venturi for metering the dilute exhaust and the elimination of the trouble-prone positive-displacement pump. Major features of the CFV CVS are the use of an efficient, low-maintenance, turbo-compressor to generate the gas flow, the use of a cyclonic separator to remove particulates from the dilute exhaust and to insure complete mixing of exhaust and dilution air, and elimination of the need for dilute exhaust temperature control by using a critical flow orifice sampling probe.

The CVS system utilized a six bag (three sample and three background) design. The bags were approximately four cu ft and were manufactured by Custom Engineering.

4.3.4 Chassis Dynamometer

A Clayton model ECE-50 dynamometer was installed at each site. To simulate vehicle weight a Clayton direct drive variable inertia flywheel assembly was attached to each dynamometer. Vehicle weights of 1750 through 5500 lbs. could be simulated. The dynamometers were flush mounted in the floor. In the interest of improved accuracy the Clayton speed and torque meters, which were of the mechanical meter movement type, were replaced with Weston 2462 digital voltmeters calibrated to read mph and lb-ft. To restrict forward movement of the vehicle, wheel chocks were placed in front of the front wheels and a hand-operated winch was tied from the rear of the vehicle to the floor. Side-to-side movement of front wheel drive cars was restricted by chains connected from the front of the vehicle to special eyebolts mounted in the dynamometer chassis.

4.3.5 Exhaust Gas Analysis Console

The three analysis consoles were built per the contract specifications by Horiba Instruments. Provisions for undiluted as well as diluted measurements were made. To reduce water vapor in the undiluted analysis system a refrigerated bath water extractor was installed in each console. In order to eliminate hydrocarbon hang-up problems, a separate flame ionization detector (FID) hydrocarbon analyzer was used for undiluted sample measurements. Stainless steel and Teflon plumbing were used exclusively throughout the entire console and all pertinent sample pump parts were Teflon coated.

The major analysis components within the console were as follows:

Analyzer	Components Measured	Ranges
Horiba AlA-21AS	CO (diluted)	100 & 500 ppm
Horiba AlA-21	CO (diluted & undiluted)	0.3%, 1%, 3%, 10%
Horiba AlA-21	CO_2 (diluted)	4%, 8%
Horiba FlA-21	HC (diluted)	50, 100, 300, 1000, 3000, & 10,000 ppm
Horiba FlA-21	HC (undiluted)	3000 & 10,000 ppm
Thermo-Electron Corp. Model 44	NO_x (diluted & undiluted)	100, 250, 1000 & 2500 ppm

The CO and CO_2 analyzers were Non-Dispersive Infrared (NDIR), the HC analyzers were Flame Ionization Detectors (FID), and the NO_x analyzer was a chemiluminescence instrument.

Each system also incorporated two Soltec 2-pen chart recorders to provide a permanent record of calibrations and analysis. The chart recorders on one system were replaced by Texas Instruments Servowriter II recorders during the program.

4.3.6 Computer System

Each of the three cells utilized a Hewlett Packard 2100 series computer in conjunction with Digital Equipment Corporation LA-36 teleprinter. The computer memory was 16K words with 16-bit word length. The computer system controlled test timing, driver's aid trace construction and shift points, CVS control functions, and wet and dry bulb temperature averaging. The computer was also used for providing the analyzer curves and determining curve fit. Test instructions to the operators were also provided by the computer by way of test indicator panels.

4.3.7 Miscellaneous Equipment

4.3.7.1 Driver's Aid

A Hewlett Packard 7128-A dual channel chart recorder was used for illustrating driver's performance. One channel, driven by the computer, illustrated the proper driving cycle and the other pen, which lagged the first by 10 - 15 seconds, was driven by a tach generator located on the rear wheel of the dynamometer.

4.3.7.2 Temperature Monitors

Every 30 seconds wet and dry bulb temperatures in front of the vehicle under test were displayed on Weston 2462 digital voltmeters and recorded on a Gulton NP-7 paper tape recorder. Soak area temperatures were continuously monitored on a Gulton 2133 temperature recording device.

4.3.7.3 Garage Analyzers

Three SUN EPA-75 non-dispersive infrared gas analyzers were used for measuring HC and CO from the exhaust during the Federal Three-Mode test.

Two Hamilton Test Systems Autosense diagnostic systems were used for measurement of HC and CO during the HTS Idle Test. One Horiba MEXA-240 analyzer which was provided as GFE (Government-furnished equipment) was used for measurement of NO_x during the HTS Idle Test.

4.3.7.4 Meteorological Monitoring Equipment

Weather conditions at the state facility were measured with a Weathermeasure WM-4 weather station.

4.3.7.5 The following additional miscellaneous equipment was also provided:

- NO_x Efficiency Detector - TECO Model 100
- Dynamometer Calibration Equipment
- Laminar Flow Element - Meriam Model 50 MCZ-4F
- Inclined Manometer - Meriam Model 40 HE 35
- Wall Mounted Manometer (2) - 0-60 in. H_20
- Electric-powered Vehicle Mover
- Paper Tape Reader - Hewlett Packard Model 12925A
- Floppy Disc Terminal (6) - WTI Datamaster II
- CRT Terminal - Lear-Siegler ADM-3

4.4 EQUIPMENT QUALIFICATION, CALIBRATION AND CROSS-CHECKS

In order to ensure accurate exhaust emission data, all equipment, software, and test procedures were qualified prior to the start of the test program. In addition, rigorous quality control procedures were followed to check and calibrate the equipment at regular intervals throughout the program.

4.4.1 Constant Volume Sampler (CVS)

4.4.1.1 Flow Calibration

Before testing started, each CVS was calibrated with a Meriam model 50 MCZ-4F, 400 cfm laminar flow element (LFE). The flow computer in the CVS control unit was set to reflect the exact flow determined through the use of the LFE.

4.4.1.2 CVS Checks

Each CVS was checked daily by using the propane recovery method. Up to 20 grams of instrument grade propane were injected into the sampler at a rate which would yield a recovery concentration in the upper one-third of the 300 ppm range of the FID. The weight of the propane was determined by weighing the propane bottle before and after injection into the CVS on a scale accurate to 0.01 gram. Determination of the recovered amount was made using the following equation:

$$\text{Mass (grams)} = 17.3\text{x}10^{-6}\text{x Vmix x HC conc}$$

where "Vmix" is measured in standard cubic feet and "HCconc" equals the concentration (ppm) of HC measured in the sample bag less the concentration in the background bag.

The hydrocarbon hang-up of each sample bag was checked daily to verify that it was less than 1 ppm. Leak checks of both the dilute and undilute sample systems were performed daily. The bags were also evacuated, purged and leak checked before each test.

4.4.2 Analytical Instrumentation

4.4.2.1 Calibration

Calibration curves using gases named by EPA were generated for each analyzer on each range prior to the start of testing. These curves were regenerated whenever maintenance which could affect the curves was performed on an analyzer, or whenever a calibration bottle was replaced. Three points (zero, 45 and 95 percent of full scale) were used for generation of the HC and NO_x curves and seven points (nominally zero, 10, 25, 35, 50, 70, and 90 percent of full scale) for the non-linear instruments. Verification of a valid curve was determined by all points being within one percent of full scale or five percent of the measured value, whichever was less.

4.4.2.2 Checks

All calibration curves were checked weekly by verifying that all calibration points remained within one percent of full scale or five percent of the measured value, whichever was less.

A wet CO_2 interference check was performed daily on the 100 ppm range of the low CO analyzer. An identical check was performed weekly on the

3000 ppm range of the high CO analyzer. Tolerances for the interference checks were 30 ppm for the high CO analyzer and 3 ppm for the low CO analyzer.

The efficiency of the NO_x converter was checked daily on the 100 ppm range to verify that the efficiency was greater than 90 percent.

Immediately before recording a sample and background reading the analyzers were zeroed and span set on the applicable range. The tolerance on these settings was ± 0.2 percent of full scale for HC and NO_x and ± 0.5 percent for CO and CO_2. The span gases used were approximately 80 percent of full scale for each range and were named from the 90 percent calibration gases. These span gases were checked weekly with the calibration gases and were renamed if they exceeded ± 1 percent of the original setpoint. After the sample and background readings were recorded, the zero and span settings were checked. The tolerance on the zero and span check was ± 1 percent of full scale.

The tune and gain of each analyzer were recorded daily, as well as the pressure and flow of gas to each instrument.

4.4.3 Dynamometer

4.4.3.1 Calibration

Calibration curves for the FTP and Federal Three-Mode tests were generated for each of the three dynamometers prior to the start of testing.

Bi-weekly checks confirmed the calibration of the dynamometers during the entire program.

The curves to determine actual vs. indicated horsepower for the FTP were generated for each inertia weight from 1750 through 5500 lbs, in 250 lb increments up to 3000 lb and 500 lb increments to 5500 lb.

Horsepower settings of 4, 8, and 14 were used for each curve. The coastdown technique was used to determine the actual horsepower after the indicated horsepower had been set on the torque meter. The coastdown technique utilizes a vehicle for setting the horsepower at the desired speed (50 mph for the FTP). Once the setting is made the vehicle is accelerated to a higher speed and the vehicle is then lifted from the dynamometer. The time it takes for the dynamometer loaded roll to slow from 5 mph greater to 5 mph less than the set speed is recorded. Using the following equation the actual horsepower (AHP) is then calculated:

$$\text{AHP} = \left(\frac{\text{Inertia Wt.}}{32.2 \text{ ft/sec}} \text{ X } \frac{V_1^2 - V_2^2}{550 \text{ x Time}} \right) \text{ x } 1/2$$

where V_1 = Initial Velocity in ft/sec,

V_2 = Final Velocity in ft/sec,

Time = Coastdown time in seconds

A strobe light was used to measure the rotative speed of the dynamometer rolls, which is converted to linear speed. A stop watch was used for the time measurement.

For the Federal Three-Mode test, curves to determine the actual vs. indicated horsepower were established for the speeds of 25 mph and 52 mph at an inertia weight of 4000 lbs. Indicated horsepower settings of 2, 4, 6, 8, 10 and 12 were used for the 25 mph curve, and 4, 6, 8, 10, 12, 14, 16, 18 and 20 were used for the 52 mph curve.

4.4.3.2 Dynamometer Checks

The indicated versus actual horsepower FTP calibration curves were confirmed bi-weekly. One point as specified in 38 Federal Register 124 for each curve (2000 - 5500 lbs) was checked to verify that the horsepower value was within ± 1 hp of the original curve point. The Federal Three-Mode 25 mph and 52 mph curves were also checked bi-weekly. This consisted of checking the high and low data points on both curves and verifying they were within ± 1 hp of the original points. The coastdown technique was used for all dynamometer checks with three time readings taken for each check and averaged for use in the actual horsepower equation.

Before performing the curve checks, the torque and speed meters were calibrated. The speed meter was calibrated with a General Radio Strobotac at 25 and 50 mph. The torque meter was calibrated with weights at 0, 5, 40 and 75 lbs.

4.4.4 Garage Analyzer Checks

The SUN EPA-75 analyzers were zeroed and span-set (75% of full scale) daily. The 25 percent-of-full-scale points for both HC and CO were checked daily. The span gases used were named from the calibration gases and were checked weekly.

The Autosense unit used for the Idle Test was checked weekly with the same span gases used for checking the SUN analyzers.

4.4.5 Equipment Logs

Logs containing the status of calibration and working gases, and all calibration and checks were maintained on a daily basis. All maintenance was also recorded in separate log books for each cell.

4.4.6 Cross Checks

Cross checks were performed several times during the course of the project under the supervision of the on-site EPA personnel. The tests were conducted on the EPA correlation vehicle (1977 Aspen station wagon). The basic test plan which was followed consisted of:

- Preconditioning soak and warm up (one LA-4 driving cycle).
- 10 minute soak - engine and cooling fan off and hood closed.
- Cruise at 30 mph for 5 minutes.
- Hot Start FTP with sample collection and analysis.
- Repeat the above four steps two times for a total of 3 cycles.
- 50 mph steady for 15 minutes with two 5 minute samples during the last 10 minutes.
- Coastdowns on dynamometer with vehicle in neutral.

The results of the data collected during the tests indicated excellent agreement between the EPA and HTS laboratories.

4.5 TEST PROCEDURES

The sequence of testing varied for the Eugene vehicles, the Portland vehicles and for the retests. Table 4.5-1 illustrates the various sequences. The maintenance retest was required for Portland vehicles which failed the initial DEQ inspection and were subsequently repaired.

4.5.1 Idle Inspection Test

The idle test was performed with the vehicle hood open and with no auxiliary cooling. The test consisted of a measurement of the vehicle emissions at idle and at 2500 ± 200 rpm, followed by another idle emissions measurement after the engine was decelerated to normal idle speed and the emissions had stabilized. HC and CO emissions were recorded for each of the three conditions. The idle speed was recorded for the normal idle modes. During the idle test at the HTS facility, NO_x emissions were also measured and recorded for each condition.

At the State facility the queue time and the following ambient conditions were recorded: temperature, wind velocity, relative humidity, barometric pressure, and general weather conditions (rain, fog, etc.).

The idle test at the HTS facility was performed with the vehicle in a warmed-up condition and was normally started within one-half hour after arriving. If the vehicle was not tested within one-half hour, the vehicle was preconditioned by a ten-minute drive on city streets. The Dry Bulb and Wet Bulb temperature, relative humidity, and baro-

TESTING SEQUENCE

Table 4.5-1

LOCATION	TEST	PARAGRAPH REFERENCE	INITIAL TEST PORTLAND	INITIAL TEST EUGENE	MAINT. RETEST	QUARTERLY RETEST
DEQ	State Idle Test	4.5.1	x	x	x	
DEQ	Fed Short Cycle	4.5.2	x	x		
DEQ	Fed Three-Mode	4.5.3	x	x		
HTS	Idle Test	4.5.1	x	x	x	x
HTS	Diagnostic Check	4.5.4	x	x	x	x
HTS	FTP Preparation	4.5.5	x	x	x	x
HTS	FTP	4.5.6	x	x	x	x
HTS	HFET	4.5.7	x	x	x	x
HTS	Hot Start FTP	4.5.8	x	x	x	x
HTS	Fed Short Cycle	4.5.2	x			
HTS	Fed Three-Mode	4.5.3	x			

metric pressure were recorded at the time of the test.

4.5.2 Federal Short Cycle Test

The Federal Short Cycle Test is a 9-mode CVS test of 125-second duration. The simulated driving distance is 0.7536 miles and the driving schedule is as follows:

Mode	Time in Mode (seconds)
0-16 mph acceleration	6
16-29 mph acceleration	23
29 mph cruise	10
29-37 mph acceleration	18
37-42 mph acceleration	4.5
42-37 mph deceleration	2.5
37-20 mph deceleration	32
20-0 mph deceleration	7.5
idle	21.5
	125.0 seconds total

The dynamometer loading and transmission shift points are identical to those used for the Federal Test Procedure. The test was preceded by a six-minute soak period. At the start of the soak the engine is stopped and, after three minutes, is restarted and allowed to idle for the final three minutes. The test was conducted with the hood closed and no auxiliary cooling.

The results calculated from this test are the HC, CO, CO_2 and NO_x emissions in grams per mile and the vehicle's fuel consumption in miles per gallon (mpg).

4.5.3 Federal Three-Mode Test

The Federal Three-Mode Test consisted of three steady state-operating modes with dynamometer loads simulating the average power occurring at the appropriate speed during the Federal Test Procedure. The actual horsepower settings used for the test are shown on Table 4.1-1. The three modes were High Speed (52 mph), Low Speed (25 mph), and Idle. For vehicles with manual transmissions the High Speed test was conducted in the fourth gear (third gear for three-speed transmissions), the Low Speed test was conducted in third gear, and the Idle test in neutral. Vehicles with automatic transmissions were tested in Drive for all modes. The HC and CO undiluted exhaust emissions were simultaneously measured on the "laboratory" instruments and visually observed on the "garage" EPA-75 analyzer for each of the modes. NO_x was also measured and recorded during the test. The test was preceded by a six-minute soak period identical to the one used for the Federal Short Cycle test. The test was conducted with the hood closed and no auxiliary cooling. The measurements for each mode were taken ten seconds after the proper speed was reached and the horsepower settings were made. The result recorded was the average value of twenty seconds of readings after the ten-second stabilization. The average value for the laboratory analyzers was calculated from strip chart records. The average value from the garage analyzers is a visual estimate.

4.5.4 Diagnostic Check

A complete diagnostic check was conducted utilizing an Autosense Diagnostic System. The checks performed are shown on Diagnostic

Inspection form (Figure 4.5-1). This form along with a copy of the Autosense Vehicle Test Report (Figure 4.5-2) was included in the vehicle test packets delivered to EPA.

4.5.5 Vehicle FTP Preparation

Upon completion of the Diagnostic Check at the HTS facility, the vehicle's tank was drained and refueled to forty percent capacity with Indolene HO fuel. Snow tires, if installed, were rotated to non drive-wheel positions. The vehicle was then preconditioned by a ten-minute drive on city streets to evaluate its driveability and to purge any non-test fuel. After the preconditioning drive the vehicle was then cold-soaked in the HTS facility for a period of twelve to twenty hours. The soak temperature was maintained at a temperature between 20° to 30° C (68° to 86° F), and was continuously monitored with a strip chart recorder.

4.5.6 Federal Test Procedure

The Federal Test Procedure (FTP) exhaust emissions test was conducted in accordance with the procedures of 37 Federal Register 221 as amended in 38 Federal Register 124, 38 Federal Register 209, 39 Federal Register 14, and 39 Federal Register 101. The temperature during the test was maintained between 20° to 30° C (68° to 86° F).

The actual dynamometer horsepower settings for each type of vehicle tested are shown on Table 4.1-1. The shift points used for the manual transmission vehicles were as shown in Table 4.5-2.

DIAGNOSTIC INSPECTION

TEST: INITIAL 92
RETEST 93/DRIVEABILITY

EPA NO. ______
DATE ______

ARE THE FOLLOWING WORKING PROPERLY OR WITHIN MANUFACTURERS SPECIFICATIONS?

YES	NO	N/A	TEST
1	2	3	IDLE SPEED
1	2	3	FAST IDLE SPEED
1	2	3	IGNITION TIMING @ IDLE
1	2	3	MECHANICAL ADVANCE @ 2500 rpm
1	2	3	TOTAL ADVANCE @ 2500 rpm
1	2	3	COIL PRIMARY VOLTAGE
1	2	3	DISTRIBUTOR POINT VOLTAGE DROP
1	2	3	SPARK PLUG FIRING VOLTAGE
1	2	3	ROTOR GAP VOLTAGE
1	2	3	CYLINDER POWER DISTRIBUTION
1	2	3	RELATIVE CYLINDER COMPRESSION
1	2	3	DWELL

ARE THE FOLLOWING PRESENT, IN GOOD CONDITION AND WORKING PROPERLY?

YES	NO	N/A	TEST
1	2	3	AIR PUMP - BELTS, HOSES
1	2	3	EGR - HOSE CONNECTION/CONDITION AND FUNCTIONAL CHECK
1	2	3	PCV VALVE - OPERATION
1	2	3	IGNITION WIRES - CONDITION AND ROUTING
1	2	3	VACUUM HOSES - CONDITION AND ROUTING
1	2	3	AIR FILTERS - CONDITION
1	2	3	HEAT RISER - OPERATION
1	2	3	AUTOMATIC CHOKE - FREEDOM OF MOVEMENT, CORRECT LINKAGE HOOKUP
1	2	3	IDLE LIMITER CAPS
1	2	3	ARE REDDISH-ORANGE OR RUST COLORED DEPOSITS VISIBLE ON SPARK PLUG TIPS?

Figure 4.5-1

HTS: PT

Figure 4.5-2

autosense

COMPUTER VEHICLE REPORT

TEST NO. USED (See test description)	LOW LIMIT	YOUR VEHICLE TEST RESULTS	HIGH LIMIT
01900			
AIDN-7630	FO 250A,S6		
908	TUNE-UP/RUNNING		
31	75	99	100
32	75	94	100
33	75	100	100
34	75	95	100
35	75	97	100
36	75	93	100
40	540	640	650
51	8.0	14.9	20.0
52	8.0	14.3	20.0
53	8.0	12.9	20.0
54	8.0	14.6	20.0
55	8.0	14.9	20.0
56	8.0	13.0	20.0
67	----	90	200
68	----	.00	1.50
50	5.0	7.0	7.0
89	12.0	13.6	16.5
90	29.5	33.3	39.0
86	----	30	200
87	----	.00	1.00
71	8.0	16.6	25.0
72	8.0	17.5	25.0
73	8.0	16.3	25.0
74	8.0	20.4	25.0
75	8.0	17.3	25.0
76	8.0	14.3	25.0
64	1700	1910	----
41	6.0	6.6	----
42	6.0	8.3	----
43	6.0	8.6	----
44	6.0	8.2	----
45	6.0	8.6	----
46	6.0	8.7	----
66	13.0	21.8	----
908	TUNE-UP/RUNNING		
0 R/C -	SECONDARY IGNITION		
0 R/C -	CYLINDER PERFORMANCE		
0 R/C -	TIMING-IGNITION		

TEST NUMBER	TEST DESCRIPTION
1	Battery Voltage (Volts)
2	Battery Drain (Amps)
3	Primary Ignition Current (Amps)
4	Battery To Ignition Switch Drop G/M Plug Only (Volts)
5	Coil Primary Voltage (Volts)
6	Coil Negative Voltage (Std. Ign. Points) (Volts)
7	Ignition Switch Voltage Drop G/M Plug Only (Volts)
10	Starter Cranking Current (Amps)
11	Battery + To Starter Voltage Drop (Volts)
12	Battery + To Starter Solenoid Voltage Drop (Volts)
13	Starter Solenoid Coil Voltage (Volts)
14	Battery Load Cranking (Volts)
15	Battery To Coil Cranking Voltage Drop (Volts)
16	Cranking RPM (RPM)
17	Instantaneous Cranking RPM (RPM)
30	Basic Timing Cranking (Degrees)
39	Ignition Switch Voltage Drop G/M Plug Only (Volts)
40	Curb Idle (RPM)
49	Distributor Point Dwell Idle (Degrees)
50	Basic Timing — Vacuum Disconnected (Degrees)
59	Coil Output Engine Off (Kilovolts)
60	Coil Output Voltage At Distributor (Kilovolts)
61	Distributor Rotor To Cap Voltage (Kilovolts)
62	Coil Condenser Oscillation Level (Counts)
63	Coil Condenser Oscillations (Counts)
64	Choke Fast Idle (RPM)
65	Solenoid Curb Idle (RPM)
66	Manifold Vacuum (In. Hg)
67	Emissions Hydrocarbon Content (PPM At Idle)
68	Emissions Carbon Monoxide Content (Percent At Idle)
69	Headlight Switch Voltage Any RPM G/M Plug Only (Volts)
70	Battery To Coil Voltage Drop (Volts)
79	Accelerator Pump (Percent Rise)
81	Distributor Dwell Deviation Per Cylinder (Degrees)
82	Dwell Variation 2500 RPM (Degrees)
85	Vacuum Rise 2500 RPM (In. Hg)
86	Emissions Hydrocarbon Content 2500 RPM (PPM)
87	Emissions Carbon Monoxide Content 2500 RPM (Percent)
89	Total Timing w/o Vacuum 2500 RPM (Degrees)
90	Total Timing w/ Vacuum 2500 RPM (Degrees)
92	Battery Ground Voltage Drop (Volts)
95	Battery Voltage Charging 2500 RPM (Volts)
96	Regulator Voltage 2500 RPM (Volts)
97	Alternator Demand (Amps)
98	Alternator Output Voltage 2500 RPM (Volts)
99	Battery Charging Current 2500 RPM (Amps)
131	Relative Cylinder Compression (Percent)
141	Cylinder Power Contribution (Percent)
151	Spark Plug Firing Voltage (Kilovolts)
171	Spark Plug Voltage Under Load (Kilovolts)
	METER
823	Multimeter (Volts, Amps, RPM)
824	Individual Spark Plug Firing Voltage (Kilovolts)
825	Spark Plug Voltage Balance (Kilovolts)
826	Spark Plug Firing Line (Kilovolts)
834	Emissions (HC, CO, RPM)
841	Cylinder Power Contribution (Percent)
861	Per Cylinder Fuel Delivery (HC)
874	Engine Power Balance — Even (Percent, RPM)
875	Engine Power Balance — Odd (Percent, RPM)
880	Timing Meter (Degrees)
881	Per Cylinder Dwell (Degrees)
866	Vacuum Gauge (In. Hg, RPM)
888	Dwell Meter (Degrees, RPM)

Owner ______________________ Phone # ____________

* INDICATES OUT OF LIMIT CONDITION
! Indicates test condition not met
M Indicates data entered by operator

HAMILTON TEST SYSTEMS

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[illegible]

SHIFT POINTS

TABLE 4.5-2

The shift points for vehicles with manual transmissions were as follows with the exceptions specified below:

3 - SPEED	1-2 20 mph	2-3 30 mph		
4 - SPEED	1-2 15 mph	2-3 25 mph	3-4 40 mph	
5 - SPEED	1-2 15 mph	2-3 25 mph	3-4 40 mph	4-5 not used

	3 SPEED		4 SPEED			5 SPEED			
	1-2	2-3	1-2	2-3	3-4	1-2	2-3	3-4	4-5
1975 Honda			15	25	40	15	25	40	55 *
1976 Honda (91 CID)			15	25	40	15	25	40	45
1977 Honda (91 CID)			15	25	40	15	20	30	45
Datsun B-210			15	25	40	15	25	40	50
1975-77 Toyota			15	25	40	15	25	40	45 *
1976 Pinto, Mustang, Bobcat, (W Trans code)			10	20	30				
1976 Pinto, Mustang, Bobcat, (X Trans code)			10	25	35				
Vega & Monza	20	30	20	30	40	20	30	40	45 *
1976 Chevette			10	25	40				

* These shift points are only used for the HFET.

The Federal Test Procedure consists of a cold transient, cold stabilized and hot transient test portions. The two transient portions are each 505 seconds long and simulate a driving distance of 3.59 miles. The stabilized portion is 867 seconds long and covers a distance of 3.91 miles.

4.5.7 Highway Fuel Economy Test (HFET)

The HFET involved vehicle operation on a dynamometer over a 10.2 mile driving schedule for a duration of 765 seconds. The test was started with the vehicle in a warmed-up condition (at least 7.5 miles of cyclic operation having occurred within the preceding thirty-five minutes) and preconditioned with the vehicle operated at 50 MPH for a period of three minutes. Within one minute of the end of the 50 MPH cruise the vehicle was brought to an idle condition and the 10.2 mile driving schedule was started.

The dynamometer load settings, transmission shift points and temperature requirements were identical to those used for the FTP. One CVS sample bag was used for collecting the dilute exhaust. HC, CO, CO_2 and NO_x were measured and emissions calculated in grams per mile along with fuel economy in miles per gallon.

4.5.8 Hot Start FTP

The Hot Start FTP was conducted identical to the FTP except that only the 7.5 mile "transient" and "stabilized" periods were performed and the test was started with the vehicle in a warm-up condition. The preconditioning for the test was a 10 minute engine-off soak which followed either the HFET or the first 505 seconds of the FTP driving cycle.

4.6 DATA HANDLING & QUALITY CONTROL

The data are basically classified into three types. They are 1) the manual data which are acquired from questionnaires and other documentation, 2) the emissions data which are recorded on data sheets in the laboratory, and 3) the vehicle identification data which were stored on file at the Michigan Terminal System (MTS). The end product of the data processing was the formatting of the manual data and emissions data on separate flexible discs for transmittal to MTS where the data were merged with the vehicle identification data and final formatted. The formatted data were then placed in a file which was accessible to EPA. The flow of the data handling system is shown on Figure 4.6-1.

4.6.1 Manual Data Handling

The manual data for the initial test sequence were collected on the Vehicle Owner Questionnaire (Figure 4.6-2), the Initial Vehicle Summary Sheet (Figure 4.6-3), and the Diagnostic Inspection form (Figure 4.5-1). For the retests the data were collected on the Vehicle Maintenance Record (Figure 4.6-4), the Retest Vehicle Summary Sheet (Figure 4.6-5) and the Diagnostic Inspection form. The data acquired on these documents were then keypunched on a terminal and Data Master II unit to a flexible disc. The same data were then re-keypunched by a different HTS employee, automatically checked for comparison, and editted as required.

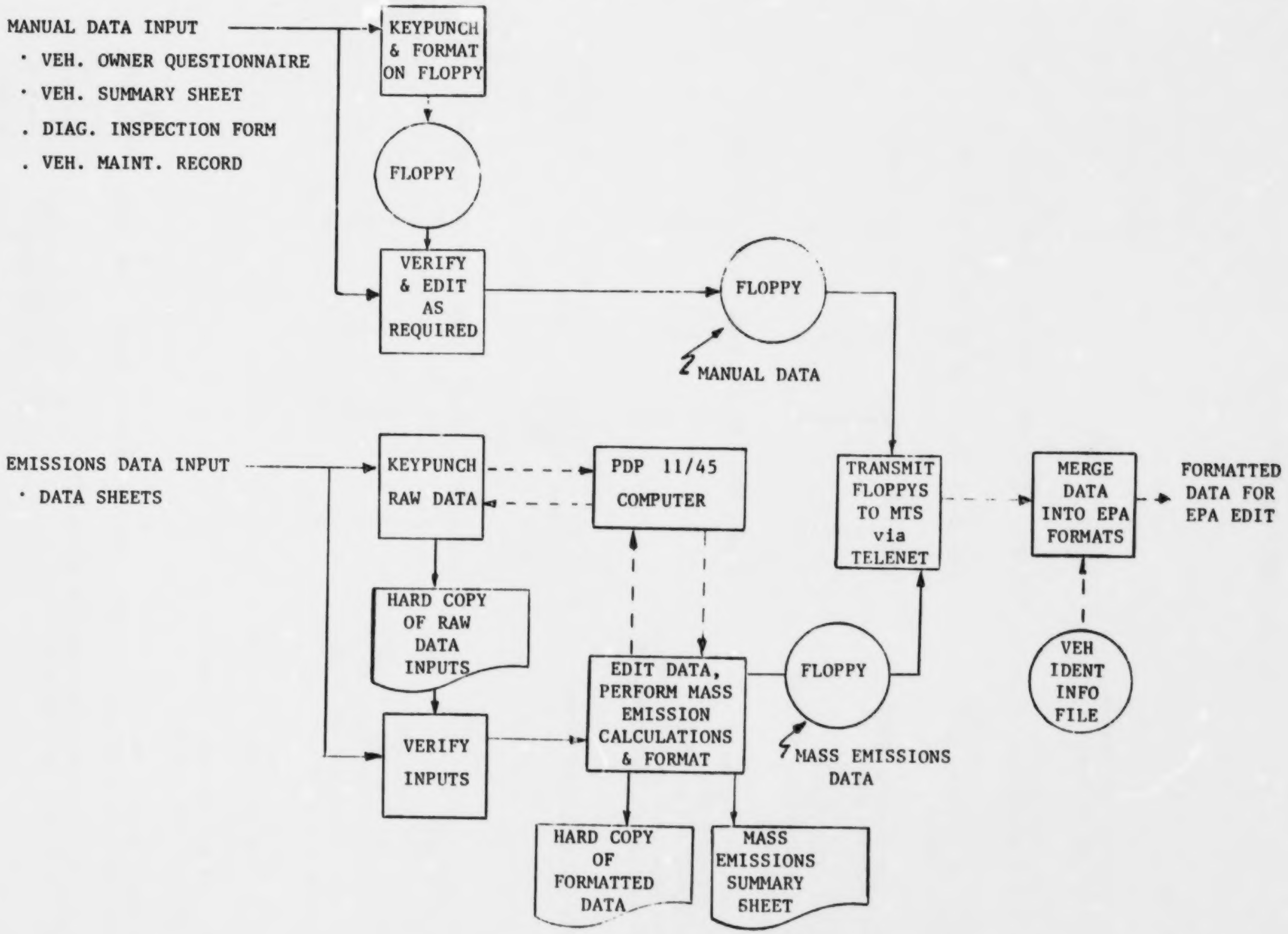
MANUAL DATA INPUT
· VEH. OWNER QUESTIONNAIRE
· VEH. SUMMARY SHEET
. DIAG. INSPECTION FORM
. VEH. MAINT. RECORD
KEYPUNCH & FORMAT ON FLOPPY
FLOPPY
VERIFY & EDIT AS REQUIRED
FLOPPY
MANUAL DATA
EMISSIONS DATA INPUT
· DATA SHEETS
KEYPUNCH RAW DATA
PDP 11/45 COMPUTER
HARD COPY OF RAW DATA INPUTS
VERIFY INPUTS
EDIT DATA, PERFORM MASS EMISSION CALCULATIONS & FORMAT
FLOPPY
MASS EMISSIONS DATA
HARD COPY OF FORMATTED DATA
MASS EMISSIONS SUMMARY SHEET
TRANSMIT FLOPPYS TO MTS via TELENET
MERGE DATA INTO EPA FORMATS
VEH IDENT INFO FILE
FORMATTED DATA FOR EPA EDIT

FIGURE 4.6- 1 DATA HANDLING FLOW CHART

VEHICLE OWNER QUESTIONNAIRE

VID ____________

TEST NO. 81

TAG NO. __________

DATE ____________

1. Did you purchase (or lease) the vehicle new or used?

1	2
NEW	USED

2. How long ago did you purchase the vehicle?

1	2	3	4
0-3 mos.	3-12 mos.	1-2 yrs.	Over 2 yrs.

3. On a yearly basis, how many thousands of miles is this vehicle driven?

1	2	3	4	5	6
0-5	5-10	10-15	15-20	20-30	Over 30

4. Where is the driving done?	Almost All	Most	Some	Little or None
a) City Expressways	1	2	3	4
b) Major City Streets	1	2	3	4
c) Other City Streets	1	2	3	4
d) Rural Expressways & other Rural Roads	1	2	3	4

5. How is the driving done?	Almost All	Most	Some	Little or None
a) To and from work	1	2	3	4
b) Shopping and errands	1	2	3	4
c) Business (not to & from work)	1	2	3	4
d) Other (social, vacation, etc.)	1	2	3	4

6. How did you get here today?

a) City Streets Only	Some Express-ways	Primarily Express-ways	b) Approx. Miles
1	2	3	☐☐

7. How is this vehicle used?	Almost All	Most	Some	Little or None
a) Driver only	1	2	3	4
b) Driver and 1 passenger	1	2	3	4
c) Driver and 2 or more passengers	1	2	3	4
d) Driver only with heavy cargo	1	2	3	4
e) Driver, passenger and cargo	1	2	3	4
f) Towing a trailer	1	2	3	4

8. On a typical day, how many trips are made with this vehicle: (One trip is defined as starting the engine, traveling some distance and stopping the engine.) ☐☐

9. On a weekly basis, how often is full-throttle acceleration used?

1	2	3	4
Seldom	Once or Twice	3-6 Times	Every Day

10. Approximately what fuel economy (in miles per gallon) does your vehicle obtain?

a) Overall ☐☐
b) Highway Driving ☐☐
c) City Driving ☐☐

(Enter 00 if owner does not know.)

Figure 4.6-2 (Sheet 1 of 3)

11. Do you now experience any engine

a) Hard Starting ☐
b) Stalling ☐
c) Rough Idle ☐
d) Engine Misfiring ☐
e) Poor Accel. ☐
f) Stumbling ☐
g) Dieseling ☐
h) Other ☐
i) No major problems ☐

12. Overall, are you reasonably satisfied with the engine performance of this vehicle?

Yes	Most of the Time	No
1	2	3

13. How long ago was the last oil change?

1	2	3	4	5	6
Too New not due	Due but not yet done	0-6 mos. ago	6-12 mos.	Over 1 yr.	Don't know

14. How often is this vehicle tuned-up?

1	2	3	4	5	6
No tune-up yet	Per. mfrs recommend.	Every 6 mos.	Every yr.	Less Often	Don't Know

15. How long ago was the last tune-up?

1	2	3	4	5	6
Too new not due	Due but not done	0-6 mos.	6-12 mos.	Over 1 yr.	Don't Know

16. Who performed this tune-up?

1	2	3	4	5	6
No tune-up	Dealer	Independent garage	Tune-up Clinic	Your-self	Don't know

17. Approximately, how much did the tune-up cost? (Try to exclude other work done at the same time.)

$ __ __ __.

☐ 999 No tune-up

☐ 000 Don't know

18. Would you consider that the vehicle has been maintained in accordance with the manufacturer's recommendations?

1	2	3
Yes	No	Don't know

19. How many times has the vehicle been returned for emission control repairs under warranty?

1	2	3	4	5
Once	Twice	3 or more	Never Returned	Not under warranty

20. Has the vehicle ever been returned under warranty for the correction of any driveability problems?

1	2	3
Yes	No	Not under warranty

21. How long ago was it returned for the correction of any driveability problems while under warranty?

1	2	3	4	5	6
0-3 months	3-6 months	over 6 months	Never returned	Don't know	Not under warranty

Figure 4.6-2 (Sheet 2 of 3)

22. Does your vehicle require the use of unleaded fuel?

1	2
Yes	No

23. If your vehicle requires unleaded fuel, how often is leaded fuel used?

1	2	3	4	5	6
Not applicable	Never	Seldom	Ocassionally	Frequently	Don't know

24. What is the brand name (not just company name) of the fuel you normally use (eg., Gulftane, Sunoco 190, Fire Chief?) __________

25. Have you, or others, ever noticed a hydrogen sulfide (rotten eggs) odor in this vehicle's exhaust?

1	2	3	4	5
Never	Seldom	Ocassionally	Frequently	Don't know

26. Is this vehicle operated regularly on unpaved roads, in competitive events, or in hauling or transporting loads heavier than for which it was designed?

1	2	3
Yes	No	Don't know

27. Has the vehicle ever had major damage in any of the following areas?

☐ a) Engine
☐ b) Cooling System
☐ c) Fuel System
☐ d) Exhaust System
☐ e) No Damage
☐ f) Don't know

28. Has this vehicle ever been modified by the installation of high performance equipment (cams, headers, carburetor's ignition parts, transmission shift kits, etc.)?

1	2	3
Yes	No	Don't know

Figure 4.6-2 (Sheet 3 of 3)

VEHICLE SUMMARY SHEET - INITIAL

EPA NO _ _ _ _ _ _ ; GR/SEQ _ _ ; VID NO _ _ _ _ _ _ ; DATE _ _ _ _ _ _ ; INERTIA WEIGHT _ _ _ _
FED. 3-MODE WT. CODE _

VEHICLE INFORMATION

AIR CONDITIONING: 1.Yes 2.No
ODOMETER: _ _ _ _ _ _
ELECTRONIC IGNITION: 1.Yes 2.No
IDLE LIMITER CAPS: 1.OK 2.Damaged 3.Missing
FUEL FILLER NECK DAMAGED OR ALTERED: 1.Yes 2.No
SPARK PLUG DEPOSITS: 1.Yes 2.No 3.Not Inspected

POST TEST CHECKS
(Not required for 1972-74 or Eugene Vehicles)

	RESULTS	SPECS
IDLE SPEED	_ _ _ _	_ _ _ _ ;
DWELL	_ _	_ _ ;
TIMING	( ) _ _ .	( ) _ _

SOURCE OF SPECS: 1.Emission Label 2.Owner's Manual 3.Indep. Repair Service Manual 4.Manufacturer Shop Manual 5.Other

DRIVEABILITY EVALUATION

ENGINE STARTING	TRANSMISSION	CLUTCH	BRAKES
1.Good	1.Ok	1.Ok	1.Ok
2.Hard	2.Shifts Hard	2.Grabs	2.Fade
3.False	3.Slips	3.Slips	3.Poor
		4.N/A	4.None

DRIVEABILITY

	Yes	No
1.OK	1	2
2.Surge	1	2
3.Stumble	1	2
4.Backfire	1	2
5.Stretchy	1	2
6.Engine Miss	1	2
7.Diesels	1	2

STATE

TEMP _ _ ^{o}F; WIND _ _ mph; REL. HUMID. _ _ %
PRECIP: 1.Rain 2. Snow 3. Fog 4. None
BARO PRESS: _ _ . _ _ in Hg;
QUEUE TIME _ _ min.; DATA CODE _; DEQ UNIT NO _ _

HTS LAB

D.B.TEMP: _ _ ^{o}F; W.B.TEMP: _ _ ^{o}F;
BARO PRESS: _ _ . _ _ in Hg;
DATA CODE _; REL. HUMID _ _ %

IDLE TEST

	IDLE	2500	IDLE	P/F STATUS	IDLE	2500	IDLE
HC(ppm)	_ _ _ _	_ _ _ _	_ _ _ _	_	_ _ _ _	_ _ _ _	_ _ _ _
CO(%)	_ _ . _	_ _ . _	_ _ . _	_	_ _ . _	_ _ . _	_ _ . _
NO_x(ppm)	▨	▨	▨	▨	_ _ _ _	_ _ _ _	_ _ _ _
RPM	_ _ _ _	▨	_ _ _ _	_	_ _ _ _	▨	_ _ _ _

Figure 4.6-3

HTS PTL 005 Walls

VEHICLE MAINTENANCE RECORD

EPA NO.__ __ __ __ __ __ __ GR/SEQ.__ __

TEST: 82 DATE: __ __ __ __ __ __ __

Were the following items repaired, replaced, or adjusted?

		REPAIRED	REPLACED	ADJUSTED	NO
1.	Spark Plugs..................	1	2	3	4
2.	Spark plug wires............	1	2	3	4
3.	Points and condenser.........	1	2	3	4
4.	Distributor cap and rotor....	1	2	3	4
5.	Spark timing control devices.	1	2	3	4
6.	Carburetor..................	1	2	3	4
7.	Choke.......................	1	2	3	4
8.	Intake system...............	1	2	3	4
9.	Air filter..................	1	2	3	4
10.	Engine oil..................	1	2	3	4
11.	Idle speed..................	1	2	3	4
12.	Timing......................	1	2	3	4
13.	Dwell.......................	1	2	3	4
14.	Air injection system.........	1	2	3	4
15.	EGR system..................	1	2	3	4
16.	PCV system..................	1	2	3	4
17.	Valves......................	1	2	3	4
18.	Other emission related maint:	1	2	3	4

____

19. Maintenance was performed by:
    1. Auto dealer service dept
    2. Independent repair garage
    3. Service station
    4. Owner
    5. Other
    6. No maintenance

20. Have you kept it confidential that you are participating in an inspection/maintenance program? 1. YES 2. NO

21. How much did maintenance cost? (to nearest dollar) $__ __ __
    (No maint= 888
    (Don't know=999
    ($0.00= 000

22. Mileage (odometer reading to nearest mile)__ __ __ __ __ __

ELEMENT III ONLY

23. Do you now experience any engine:

	YES	NO		YES	NO
Hard starting	1	2	Stumbling	1	2
Stalling	1	2	Dieseling	1	2
Rough idle	1	2	Other	1	2
Engine misfiring	1	2			
Poor acceleration	1	2	No major problems	1	2

	YES	MOST OF THE TIME	NO
24. Overall, are you reasonably satisfied with the engine performance of this vehicle?	1	2	3

Figure 4.6-4

VEHICLE SUMMARY SHEET - RETEST

EPA __ __ __ __ __ __ __; GR/SEQ __ __; INERTIA WEIGHT __ __ __ __; DATE __ __ __ __ __ __

STATE (not required for Quarterly Test)

TEMP __ __ °F; WIND __ __ mph; REL. HUMID. __ __ %

PRECIP: 1.Rain 2.Snow 3.Fog 4.None

BARO PRESSURE: __ __.__ __ in Hg;

QUEUE TIME __ __ min.; DATA CODE __; DEQ UNIT NO. __ __

HTS LAB

D.B.TEMP. __ __ °F; W.B.TEMP. __ __ °F;

BARO. PRESSURE: __ __.__ __ in Hg;

DATA CODE: __; REL. HUMID. __ __ %

IDLE TEST

	IDLE	2500	IDLE	P/F STATUS	IDLE	2500	IDLE
HC(ppm)	__ __ __ __	__ __ __ __	__ __ __ __	__	__ __ __ __	__ __ __ __	__ __ __ __
CO(%)	__ __.__	__ __.__	__ __.__	__	__ __ __	__ __ __	__ __.__
NO_x(ppm)	▨	▨	▨	▨	__ __ __ __	__ __ __ __	__ __ __ __
RPM	__ __ __ __	▨	__ __ __ __	__	__ __ __ __	▨	__ __ __ __

DRIVEABILITY EVALUATION

ENGINE STARTING	TRANSMISSION	CLUTCH	BRAKES
1.Good	1.OK	1.OK	1.OK
2.Hard	2.Shifts	2.Grabs	2.Fade
3.False	3.Slips	3.Slips	3.Poor
		4.N/A	4.None

DRIVEABILITY

	Yes	No		Yes	No
1.OK	1	2	5.Stretchy	1	2
2.Surge	1	2	6.Engine Miss	1	2
3.Stumble	1	2	7.Diesels	1	2
4.Backfire	1	2			

Figure 4.6-5

HTS PTL 006 Walls

A hard copy of the data on the disc was made and kept as a backup file. A copy of the questionnaires and other documentation was included in the vehicle test packets delivered to EPA.

4.6.2 Emissions Data Handling

During the early stages of data transmittals many errors in transcription were detected in the emissions data. In an effort to provide EPA with test packets with an acceptable error free rate, a rigorous procedure for checking and handling of the emissions data was developed.

One of the major sources of errors which were undetected by the QC personnel was the transfer of data by the CVS technicians from the gas analyzer strip chart recordings to the Emissions Data Sheets (Figure 4.6-6). To alleviate this problem a second set of Emissions Data Sheets was generated by the QC personnel directly from the strip charts. The two sets of Emissions Data Sheets were then compared and any discrepancy was corrected. As a further check a second QC employee would recheck the two sets for agreement.

After the Emissions Data Sheets were corrected, the data were keypunched into a terminal connected via a modem to a local computer service. The computer used was a DEC PDP 11/45, and was programmed to prompt the inputs, perform the emissions calculations, and format the data. Prior to commanding the computer to perform the emissions calculation, a hard copy of the raw inputs (Figure 4.6-7) was checked by QC personnel to verify that all entries were correct. Any errors

HAMILTON TEST SYSTEMS

DEQ FSC/F3M EMISSIONS DATA SHEET

RUN NUMBER

OPERATOR

DRIVER

IHP

EPA NUMBER: 0

GR/SQ

DATE (YYMMDD): 7

SITE: 1

INERTIA WT ; CODE

AHP

FSC-DEQ

TEST: 10

DATA CODE

DB

WB

VMIX

		CO	NO_x	CO_2	HC
BAG SET 1	SAMPLE	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT
	BACKGROUND	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT

F3M-DEQ

TEST: 20

DATA CODE

DB

ACTUAL HORSEPOWER

HIGH SPEED

LOW SPEED

		CO	NO_x	HC
HI-SPEED	LAB	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT
	GAR	CO (%)		HC (PPM)
LO-SPEED	LAB	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT
	GAR	CO(%)		H (PPM)
IDLE	LAB	RANGE DEFLECT	RANGE DEFLECT	RANGE DEFLECT
	GAR	CO(%)		HC(PPM)

Figure 4.6-6 (Sheet 1 of 3)

HAMILTON TEST SYSTEMS

FTP EMISSIONS DATA SHEET

RUN NUMBER

OPERATOR

DRIVER

IHP .

0 EPA NUMBER

GR/SQ

7 DATE (YYMMDD)

SITE

INERTIA WT | CODE

AHP .

FTP 30 TEST

DATA CODE

BARO .

DB

WB

VMIX

CO | NO$_X$ | CO$_2$ | HC

COLD TRANSIENT

BAG SET 1

SAMPLE

SAMPLE	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT
BACKGROUND	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT

BARO .

DB

WB

VMIX

COLD STABILIZED

BAG SET 2

SAMPLE	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT
BACKGROUND	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT

BARO .

DB

WB

VMIX

HOT TRANSIENT

BAG SET 3

SAMPLE	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT
BACKGROUND	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT	RANGE . DEFLECT

HTS PTL 021

Figure 4.6-6 (Sheet 2 of 3)

HAMILTON TEST SYSTEMS

HFET/HSFTP EMISSIONS DATA SHEET

						.
RUN NUMBER	OPERATOR		DRIVER			IHP
0		7				.
EPA NUMBER	GR/SQ	DATE (YYMMDD)	SITE	INERTIA WT	CODE	AHP

HFET	40		.			
	TEST	DATA CODE	BARO	DB	WB	VMIX

		CO	NO_x	CO_2	HC
BAG SET 1	SAMPLE	RANGE	RANGE	RANGE	RANGE
		.	.	.	.
		DEFLECT	DEFLECT	DEFLECT	DEFLECT
	BACKGROUND	RANGE	RANGE	RANGE	RANGE
		.	.	.	.
		DEFLECT	DEFLECT	DEFLECT	DEFLECT

HSFTP	50		.			
	TEST	DATA CODE	BARO	DB	WB	VMIX

HOT TRANSIENT	BAG SET 2	SAMPLE	RANGE	RANGE	RANGE	RANGE
			.	.	.	.
			DEFLECT	DEFLECT	DEFLECT	DEFLECT
		BACKGROUND	RANGE	RANGE	RANGE	RANGE
			.	.	.	.
			DEFLECT	DEFLECT	DEFLECT	DEFLECT

.			
BARO	DB	WB	VMIX

HOT STABILIZED	BAG SET 3	SAMPLE	RANGE	RANGE	RANGE	RANGE
			.	.	.	.
			DEFLECT	DEFLECT	DEFLECT	DEFLECT
		BACKGROUND	RANGE	RANGE	RANGE	RANGE
			.	.	.	.
			DEFLECT	DEFLECT	DEFLECT	DEFLECT

HTS PTL 019 Wall's

Figure 4.6-6 (Sheet 3 of 3)

```
        EPA#    GR/SQ   DATE    SITE   IN.WT    HP  DCODE   BARO   TDB   TWB   VMIX
10      064033    11   780119    1     2500    09.4 1       0       53    52   0736
              COS          COB          NOXS        NOXB        CO2S        CO2B        HCS        HCB
 RANGE        500          500          100         100         4           4           1001       100
 DEFLECT      71.1         1.9          43.1        .5          20.8        1.2         82.1       4.5        BAG1
TEST#  EPA#    GR/SQ   DATE    SITE   DCODE   TDB   HPHI   HPLO
 20    064033    11   780119    1      1       51    12.0   05.5

HI-SPEED     CO(%)                 NOX                 HC(PPM)
 RANGE       3                     2500                3000
 DEFLECT     8                     68.5                30.8
 GARAGE      .2                                        60
LO-SPEED     CO(%)                 NOX                 HC(PPM)
 RANGE       3                     2500                3000
 DEFLECT     47.4                  20.7                43.4
 GARAGE      1.2                                       130
IDLE-SPD     CO(%)                 NOX                 HC(PPM)
 RANGE       3                     2500                3000
 DEFLECT     24.9                  2                   13.5
  GARAGE     .6                                        45
TEST#  EPA#    GR/SQ   DATE    SITE   IN.WT    HP  DCODE   BARO   TDB   TWB   VMIX
30     064033    11   780120    2     2500    09.4 1       30.07   75    59   2805
              COS          COB          NOXS        NOXB        CO2S        CO2B        HCS        HCB
 RANGE        3000         500          100         100         4           4           300        300
 DEFLECT      25.2         .8           88.1        .2          28.7        1.2         46.3       2.3        BAG1
                                                                BARO   TDB   TWB   VMIX
                                                                30.07   76    60   4817
              COS          COB          NOXS        NOXB        CO2S        CO2B        HCS        HCB
 RANGE        500          500          100         100         4           4           50         50
 DEFLECT      63.9         .8           24.4        .2          20.2        1.2         92.6       11.8       BAG2
                                                                BARO   TDB   TWB   VMIX
                                                                30.07   74    59   2798
              COS          COB          NOXS        NOXB        CO2S        CO2B        HCS        HCB
 RANGE        500          500          100         100         4           4           100        100
 DEFLECT      66           .8           74.5        .1          26.1        1.2         86         5.7        BAG3
TEST#  EPA#    GR/SQ   DATE    SITE   IN.WT    HP  DCODE   BARO   TDB   TWB   VMIX
```

RAW DATA INPUTS

Figure 4.6-7

were corrected by an edit routine. After the raw inputs were verified the emissions calculations were performed, yielding as output the Mass Emissions Summary Sheet (Figure 4.6-8), and the flexible disc of the formatted data. As a backup a hard copy of the formatted disc data was also made. The Mass Emissions Summary Sheet was then checked for reasonableness of results.

4.6.3 Vehicle Identification Data

The following information was stored in file at the Michigan Terminal System (MTS) for approximately 35,000 vehicles. The information was retrieved by a code number which was transmitted to MTS with the manual data.

- Vehicle Identification Number (VIN)
- Engine Family Designation
- EPA Vehicle Manufacturer and Model Codes
- Model Year
- Engine Displacement and Type
- Number of Cylinders
- Fuel Metering
- Inertia Weight
- Types of Emission Controls

4.6.4 Mass Emissions and Fuel Economy Calculation

The mass emissions for the FTP (including the Hot Start FTP) results were calculated in accordance with the applicable Federal Register requirements. The Federal Short Cycle test and HFET mass emissions were

Mass Emission Data Summary
Hamilton Test Systems

EPA Number 064033-11

Report made 19-Ju

TEST	BAG(UNITS)	HC	CO	CO2	NOX	NOXC	MPG
FTP-30	CT(grams)	006.08	051.07	1439.8	13.37	11.83	******
	CS(grams)	003.20	046.50	1691.9	06.33	05.66	******
	HT(grams)	003.69	028.01	1295.9	11.29	10.06	******
	COMP/GPM	001.06	011.26	0406.6	02.47	02.20	20.7
HFET-40	GPM	000.55	004.15	0277.3	03.66	*****	31.05
HS-FTP-50	HT(grams)	003.79	027.42	1283.0	11.04	09.84	******
	HS(grams)	002.98	043.70	1665.1	05.80	05.16	21.59
FSC-10	GPM	001.24	010.63	0346.3	02.26	*****	24.2
FSC-60	GPM	000.69	009.34	0331.6	01.77	*****	25.4

	Hi					Low					Idle				
	HC-L	CO-L	NOX-L	HC-G	CO-G	HC-L	CO-L	NOX-L	HC-G	CO-G	HC-L	CO-L	NOX-L	HC-G	CO-G
TEST 20	0938.9	00.2	1715.0	0060	00.2	1325.0	01.2	0519.4	0130	01.2	0408.8	00.5	0051.7	0045	00.6
TEST 70	0829.8	00.2	1495.0	0120	00.3	1227.5	01.2	0480.3	0160	01.2	0367.9	00.4	0060.1	0100	00.5

MASS EMISSION DATA SUMMARY

Figure 4.6-8

calculated in the same manner except that a distance of 0.7536 miles for the Short Cycle Test and 10.242 miles for the HFET test were used to calculate grams per mile.

The fuel economy results were calculated using the carbon balance method. The equation used was:

$$\text{mpg} = \frac{2421}{0.866\ \text{HC}_{\text{mass}} + 0.429\ \text{CO}_{\text{mass}} + 0.273\ \text{CO}_{2_{\text{mass}}}}$$

In this equation, the mass emissions are in grams per mile.

5.0 TEST RESULTS

The test results for the Element II study are provided in the Appendices. The Contents of these appendices are as follows:

Appendix A -	provides a listing of vehicles recruited for the program and vehicle identification information by EPA number.
Appendix B -	provides a listing of the Idle Test results for both the DEQ inspection and the HTS laboratory tests.
Appendix C -	provides a listing of the Federal Three-Mode Test results for both the DEQ and HTS laboratory tests.
Appendix D -	provides a listing of the Federal Short Cycle Test results for both the DEQ and HTS laboratory tests.
Appendix E -	provides a listing of the FTP, HFET and Hot Start FTP test results at the HTS laboratory.
Appendix F -	provides a composite of all tests for each group (i.e. 1972-74 Portland Pass). The composite results contain the means and standard deviations for the various tests performed.

The EPA vehicle numbering system used for the program was as follows:

EPA Number Series	Group Description
23XXX, 33XXX, 43XXX	Portland-area 1972-74 model year vehicles which passed the DEQ inspection,
54XXX, 64XXX, 74XXX	Portland-area 1975-77 model year vehicles which passed the DEQ inspection,
25XXX, 35XXX, 45XXX	Portland-area 1972-74 model year vehicles which failed the DEQ inspection,
56XXX, 66XXX, 76XXX	Portland-area 1975-77 model year vehicles which failed the DEQ inspection,
27XXX, 37XXX, 47XXX	Eugene-area 1972-74 model year vehicles,
58XXX, 68XXX, 78XXX	Eugene-area 1975-77 model year vehicles.

The first digit of the EPA number represents the model year of the vehicle.

Pass or Fail status was based on the DEQ inspection requirements which are as follows:

- Factory-installed motor vehicle pollution control systems must not be disconnected, plugged or otherwise made inoperative.
- Idle speed must not exceed the manufacturer's idle speed specifications by over 200 RPM.

- No visible emission during the idle test from either the vehicle's exhaust system or engine crankcase.

- The hydrocarbon (HC) idle emission standards and enforcement tolerances for the vehicles tested in the program are as follows:

	Standard (ppm)	Enforcement Tolerance (ppm)
1975-77 Vehicles with catalyst	125	100
1975-77 Vehicles without catalyst	200	100
1972-74 Vehicles with 6 or 8 cyl.	300	100
1972-74 Vehicles with 4 cylinders	400	100

- The carbon monoxide idle emission standards and enforcement tolerances for the vehicles tested are as specified in Table 5.0-1.

TABLE 5.0-1

DEQ STANDARDS & ENFORCEMENT TOLERANCES FOR ELEMENT II VEHICLES

Carbon Monoxide	Standard %	Enforcement Tolerance %
American Motors Corporation		
1975-77 Non-catalyst	1.5	0.5
1975-77 Catalyst equipped	0.5	0.5
1972-74	2.0	1.0
Audi		
1975-77	1.5	0.5
Chrysler Corporation		
1975-77 Non-catalyst	1.0	0.5
1975-77 Catalyst equipped	0.5	0.5
1976 Dodge Colt, Plymouth Arrow	3.0	0.5
1973-74	1.0	1.5
1972	1.5	1.5
Datsun		
1975-77	2.0	0.5
1972-74	2.5	1.0
Ford Motor Company		
1975-77 Non-catalyst	1.0	0.5
1975-77 Catalyst equipped	0.5	0.5
1974 6 or 8 cylinders	1.0	1.0
1973 6 or 8 cylinders	1.0	1.5
1972 6 or 8 cylinders	1.0	2.0
1972-74 4 cylinders	2.0	1.0
General Motors Corporation		
1975-77 Non-catalyst	1.0	0.5
1975-77 Catalyst equipped	0.5	0.5
1973-74	1.0	1.0
1972	1.5	1.0
Honda		
1975-77 CVCC	1.0	0.5
1975-77 except CVCC	1.5	0.5
Toyota		
1975-77 Catalyst equipped	0.5	0.5
1975-77 Non-catalyst	2.0	0.5
1972-74	4.0	1.0
Volkswagen		
1975 Rabbit, Dasher, Scirocco	0.5	0.5
1975 All Others	2.5	0.5
1976 Rabbit, Scirocco	0.5	0.5
1976-77 All others	2.5	0.5
1977 Rabbit, Scirocco	2.0	0.5
1972-74	3.0	1.0
Volvo		
1975-77	2.0	0.5
1972-74	3.0	1.0

6.0 APPENDICES

Appendix A - Listing of Vehicles

Appendix B - Idle Test Results

Appendix C - Federal Three-Mode Test Results

Appendix D - Federal Short Cycle Test Results

Appendix E - FTP, HFET and Hot Start FTP Results

Appendix F - Composite of Test Results

APPENDIX A - LISTING OF VEHICLES

Legend

EPA NO - 1st Digit Represents Vehicle Model Year

MAKE - Vehicle Make Code (see next page)

MODL - Vehicle Model Code (see next page)

CID - Engine Displacement in Cubic Inches

C - No. of Cylinders

T - Transmission Type (1 = Manual, 2 = Auto)

F - Fuel Metering System (1 = 1-barrel carb, 2 = 2-barrel carb, 3 = 4-barrel carb, 4 = CVCC (Honda), 5 = Fuel Injection)

EI - Electronic Ignition (1 = Yes, 2 = No)

CA - Canister Evap. Control (1 = Yes, 2 = No)

CE - Crankcase Evap. Control (1 = Yes, 2 = No)

AC - Air Conditioning (1 = Yes, 2 = No)

EM - Engine Modification (1 = Yes, 2 = No)

AS - AIR System (1 = Yes, 2 = No)

CC - Catalytic System (1 = Yes, 2 = No)

ES - EGR System (1 = Yes, 2 = No)

TR - Thermal Reactor (1 = Yes, 2 = No)

TAG - 1st Letter of License (V = Vanity Plate)

ODOM - Odometer Reading

F - Temp. in °F

RH - Percent Relative Humidity

BARO - Barometric Pressure in Inches of Hg

QT - Queuing Time Prior to DEQ Idle Test

DB - Dry Bulb Temp. in °F

WB - Wet Bulb Temp. in °F

MAKE CODES

CODE	MANUFACTURER	CODE	MANUFACTURER	CODE	MANUFACTURER
010	AMC	041	Buick	260	Honda
021	Chrysler	042	Cadillac	380	Datsun
022	Dodge	043	Chevrolet	570	Toyota
023	Plymouth	044	Oldsmobile	590	Volkswagen
031	Ford	045	Pontiac	600	Volvo
033	Mercury			640	Audi

MODEL CODES

CODE	NAME	CODE	NAME	CODE	NAME
107	Gremlin	348	Mustang	464	Regal
108	Hornet	349	Pinto	465	Riviera
111	Matador	372	Thunderbird	467	Skylark
112	Pacer	373	Torino	472	Caprice
210	Cordoba	380	B 210	478	Impala
224	Colt	385	610	481	Laguna
225	Coronet, Polara, Charger	388	PL 510	482	Malibu
227	Dart	389	LB 110	483	Monte Carlo
229	Monaco	392	Monarch	484	Monza
		394	Montego	486	Nova
254	Aspen	395	Monterey	488	Vega
261	Civic	399	XR-7	489	Chevette
262	Civic CVCC	402	Ventura	491	Regency
275	Fury	417	Century	494	Cutlass Supreme
277	Gran Fury	418	Electra	498	LeMans
281	Satellite	419	Estate Wagon	570	Corolla
282	Scamp	424	Calais	571	Corolla Wagon
285	Valiant	425	DeVille	572	Celica
287	Volare	429	Seville	573	Corona
313	Ford Wagon	436	Belair	590	Beetle
315	Ford Custom	439	Camaro	591	Rabbit
316	Elite	442	Custom Cruiser	592	Dasher
331	Bobcat	444	Cutlass	593	Dasher Wagon
334	Comet	446	Delta 88	594	Scirocco
336	Cougar	448	Ninety Eight	600	240
341	Galaxie	449	Omega	601	245 Wagon
342	Granada	452	Bonneville	604	140
343	Gran Torino	453	Catalina	640	Fox
345	LTD	457	Grand Prix		
347	Maverick	462	LeSabre		

Reproduced from best available copy.

APPENDIX A - LISTING OF VEHICLES

1972 - 74 PORTLAND PASS

																			DEQ DATA					HTS DATA				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
23003	1V15B2J228580	043	488	140	4	1	2	2	1	2	2	2	1	2	2	2	A	039515	770922	58	90	30.05	04	770922	71	66	77	29.98
23004	2D37M2P142560	045	498	350	8	2	2	2	1	2	2	2	1	2	2	2	V	057061	770923	60	96	30.00	02	770923	76	69	70	29.74
23005	1V77B2U222312	043	488	140	4	1	2	2	1	2	2	2	1	2	2	2	A	052965	771028	53	99	29.65	00	771028	70	67	86	29.76
23007	4V39T2H494273	041	418	455	8	2	3	2	1	2	1	1	1	2	2	2	D	041423	771020	58	78	29.95	41	771020	72	66	73	30.16
23008	1V11B2U168249	043	488	140	4	1	2	2	1	2	2	2	1	2	2	2	A	074360	771020	56	88	29.98	00	771020	75	69	74	30.15
23009	2R11X143154	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	057927	771021	63	70	30.10	00	771021	75	62	47	30.04
23010	VL29C2B250066	023	285	225	6	2	1	2	1	2	2	1	2	2	2	2	B	027143	771107	62	62	30.30	13	771107	68	64	80	30.36
23011	LH23C2B263306	022	227	225	6	2	1	2	1	2	2	1	2	2	2	2	A	013155	771107	56	73	30.35	09	771107	71	68	86	30.38
23012	RH41G2G154175	023	275	318	8	2	2	2	1	2	1	1	2	2	2	2	A	116183	771109	57	56	30.00	15	771109	74	72	95	30.08
23013	2Y69D2L104595	045	402	250	6	2	1	2	1	2	2	2	1	2	2	2	A	033829	771109	47	79	30.05	03	771109	69	67	90	30.14
23014	3J57K2Z111799	044	494	350	8	2	3	2	1	2	1	1	2	2	2	2	B	097002	771116	51	69	30.30	16	771116	71	58	45	30.42
23015	WP29G2G126744	022	225	318	8	2	2	2	1	2	2	1	2	2	2	2	A	069171	771205	49	80	30.01	15	771205	76	73	87	30.22
23016	PH41K2D243620	023	277	360	8	2	2	2	1	2	1	1	2	2	2	2	A	077018	771212	49	93	29.80	08	771212	68	66	90	29.66
23017	1122270644	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	102989	771215	43	97	29.75	02	771215	68	65	85	29.82
23018	1X27D2_104181	043	486	250	6	2	1	2	1	2	2	2	1	2	2	2	A	034315	771227	40	62	30.00	15	771227	63	62	95	30.04
23019	1122160394	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	049845	780217	46	94	30.15	10	780217	65	59	70	30.33
23021	2P68S131619	031	345	400	8	2	2	2	1	2	1	1	2	2	2	2	A	092936	780120	50	96	30.00	25	780120	76	62	44	30.50
23022	1426344263817	600	604	121	4	1	2	2	1	2	2	1	2	2	2	2	A	047887	780123	42	91	30.45	35	780123	70	56	40	30.45
23023	2T10X320286	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	023594	780201	46	99	29.70	05	780201	68	60	62	29.70
23024	1M57H2C144875	043	478	350	8	2	2	2	1	2	1	2	1	2	2	2	A	084684	780203	54	84	30.05	05	780203	70	67	81	30.08
23025	VH23C2B290997	023	285	225	6	2	1	1	1	2	1	1	2	2	2	2	A	036565	780215	46	85	30.20	20	780215	60	53	63	30.25
23026	1122320275	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	062501	780216	44	88	30.10	15	780216	58	52	72	30.11
23027	PL510986892	380	388	097	4	1	2	2	2	1	2	1	2	2	2	2	A	036530	780221	50	86	30.30	10	780221	67	61	71	30.32
23028	2R11X109054	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	052861	780221	52	85	30.25	25	780221	60	57	83	30.32
23029	1V77B2U181581	043	488	140	4	1	2	2	1	2	2	2	1	2	2	2	A	081032	780221	50	89	30.25	00	780221	64	57	65	29.96
23030	2J56H144438	031	341	351	8	2	2	2	1	2	1	1	2	2	2	2	A	084932	780222	50	77	30.25	15	780222	62	58	79	30.16
23031	2P56S126939	031	341	400	8	2	2	2	1	2	2	1	2	2	2	2	A	114041	780224	51	84	29.90	15	780224	62	58	79	29.90
23032	1D37H2K528617	043	482	350	8	2	2	2	1	2	1	2	1	2	2	2	V	088151	780224	51	78	29.85	10	780224	64	58	70	29.92
23033	2G68S169674	031	345	400	8	2	2	2	1	2	1	1	2	2	2	2	A	028239	780224	49	99	30.00	00	780224	60	55	73	29.92
23034	DM41K2D199721	022	229	360	8	2	2	1	1	2	1	1	2	2	2	2	A	067753	780227	48	99	30.29	05	780227	58	54	77	29.82
23035	2F91H504929	033	336	351	8	2	2	2	1	2	1	1	2	2	2	2	A	030598	780301	46	75	29.50	20	780301	70	63	68	29.58
23036	1M69H2C142435	043	478	350	8	2	2	2	1	2	2	2	1	2	2	2	A	058342	780301	45	50	29.50	00	780301	52	63	50	29.50
23037	TE27U35692	570	570	097	4	1	2	2	1	2	2	1	2	2	2	2	A	079427	780303	42	76	29.70	15	780303	65	58	66	29.73
23038	2P54S100455	031	341	400	8	2	2	2	1	2	2	1	2	2	2	2	A	085776	780304	41	82	29.45	05	780304	66	61	75	30.04
23039	2P10X114460	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	082593	780306	50	85	30.00	05	780306	69	63	72	30.76
23040	PL510937719	380	388	097	4	1	2	2	2	1	2	1	2	2	2	2	A	075939	780307	52	91	29.85	25	780307	59	57	89	29.90
23041	2D37M2Z101276	045	498	350	8	2	2	2	1	2	2	2	1	2	2	2	A	054137	780308	51	95	30.00	00	780308	62	58	79	30.04
23042	2K92F146060	031	347	302	8	2	2	2	1	2	2	1	2	2	2	2	E	040706	780320	54	76	30.00	00	780320	69	59	55	30.09
23043	4V39T2H501577	041	418	455	8	2	3	2	1	2	1	1	1	2	2	2	E	047276	780327	62	74	30.50	04	780327	72	69	86	30.75
23044	A2A067E284639	010	108	232	6	2	1	2	1	2	2	1	2	2	2	2	E	124590	780406	55	56	29.70	10	780406	65	61	80	29.84
23045	A2A087A255467	010	108	258	6	2	1	2	1	2	2	1	2	2	2	2	F	068585	780410	69	50	29.83	00	780410	70	52	25	30.02
23046	PL510962273	380	388	097	4	1	2	2	2	1	2	1	2	2	2	2	E	059098	780412	54	56	30.15	05	780412	62	50	41	30.20
23047	1D37H2L569204	043	482	350	8	2	2	2	1	2	2	2	1	2	2	2	E	051947	780412	60	45	29.95	05	780412	58	49	51	29.97
23048	4X87U2H929177	041	465	455	8	2	3	2	1	2	1	1	1	2	2	2	E	084930	780413	50	86	29.70	05	780413	62	53	54	29.80
33003	3P53H118273	031	315	351	8	2	2	1	1	2	1	2	2	2	1	2	A	025939	771006	59	95	29.95	20	771006	77	72	82	30.02
33004	3J57K3M264939	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	V	045726	770924	58	94	29.75	15	770924	72	67	77	29.92
33005	3K93L154668	031	347	250	6	2	1	2	1	2	2	2	2	2	1	2	A	025475	771006	55	99	29.90	00	771006	77	72	82	30.02
33006	1L39H3C142965	043	478	350	8	2	2	2	1	2	2	2	1	2	1	2	A	038737	771013	57	92	30.10	05	771013	71	63	64	30.18
33007	1N47R3C142193	043	472	400	8	2	2	2	1	2	1	1	1	2	1	2	A	021064	771027	49	92	29.70	15	771027	74	68	74	29.76
33008	3G37M3M250444	044	444	350	8	2	2	2	1	2	1	2	1	2	1	2	A	042403	771027	55	79	29.65	14	771027	71	66	77	29.78

APPENDIX A - LISTING OF VEHICLES

1972 - 74 PORTLAND PASS

																		------DEQ DATA------					-----HIS DATA------				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
33009	1X27F3L100226	043	486	307	8	2	2	2	1	2	1	1	1	2	1	2	A	066385	771104	49	70	29.68	07	771104	72	68	82	29.65
33010	1X69H3.102304	043	486	350	8	2	2	2	1	2	1	1	1	2	1	2	A	056347	771121	36	48	29.65	05	771121	73	67	73	29.73
33011	1446363384420	600	604	121	4	2	2	2	1	2	1	2	2	2	2	2	V	041878	771214	52	99	29.50	15	771214	72	70	91	29.52
33012	3J76S223996	031	313	400	8	2	2	2	1	2	1	2	2	2	1	2	V	078666	771215	44	95	29.65	20	771215	69	66	85	29.87
33013	1426343357013	600	604	121	4	1	2	2	1	2	1	2	2	2	2	2	B	123981	771228	36	73	29.90	20	771228	68	65	85	29.90
33014	1D37H32424892	043	482	350	8	2	2	2	1	2	1	2	1	2	1	2	A	060179	771230	38	99	29.70	30	771230	60	58	89	30.60
33015	PL610077049	380	385	108	4	1	2	2	1	2	2	1	2	2	2	2	A	054028	771230	40	99	30.00	10	771230	58	57	94	30.07
33016	VH23C36258053	023	285	225	6	2	1	1	1	2	2	2	2	2	1	2	A	044648	780110	48	92	29.80	55	780110	59	56	83	29.78
33017	3R12X155226	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	038613	780110	46	95	29.80	25	780110	70	68	90	29.80
33018	3K91L162431	031	347	250	6	2	1	2	1	2	2	2	2	2	1	2	A	031672	780116	46	86	29.30	25	780116	65	63	85	29.32
33019	3F91H517446	033	336	351	8	2	2	2	1	2	2	2	2	2	1	2	A	041104	780119	48	85	29.75	15	780119	60	54	68	29.88
33020	PH23K3D199538	023	277	360	8	2	2	1	1	2	1	2	2	2	1	2	A	032075	780120	50	99	30.00	15	780120	74	61	47	30.50
33021	3R11X211948	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	055693	780123	42	83	30.40	20	780123	70	69	95	30.41
33022	3R12X172747	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	048498	780130	46	66	30.00	15	780130	56	49	60	29.92
33023	1L47R3C138596	043	478	400	8	2	2	1	1	2	1	1	1	2	1	2	A	066550	780202	46	98	29.85	20	780202	65	59	70	29.84
33024	VH23C36226270	023	285	225	6	2	1	1	1	2	2	2	2	2	1	2	A	090411	780207	49	97	29.10	08	780207	60	55	73	29.17
33025	4029H32117704	041	417	350	8	2	2	2	1	2	2	2	1	2	1	2	A	054917	780207	48	99	29.10	05	780207	62	55	64	29.56
33026	1332230048	590	590	097	4	1	1	1	1	2	2	1	2	2	2	2	A	063693	780215	43	89	29.95	10	780215	55	51	76	30.14
33027	A3A057C221658	010	108	232	6	2	1	2	1	2	2	2	1	2	1	2	A	051998	780302	46	46	29.60	15	780302	73	65	65	30.24
33028	LL29G3B156572	022	227	318	8	2	2	1	1	2	2	2	2	2	1	2	A	073062	780224	54	83	29.90	15	780224	61	56	73	29.96
33029	1L47H3T106937	043	478	350	8	2	2	2	1	2	1	2	1	2	1	2	A	067760	780227	46	95	29.80	25	780227	70	60	55	29.88
33030	3P76S125893	031	313	400	8	2	2	2	1	2	1	2	2	2	1	2	A	046314	780227	46	99	29.30	15	780227	60	55	73	29.80
33031	3H30H159106	031	343	351	8	2	2	2	1	2	1	2	2	2	1	2	A	050644	780228	48	70	29.50	00	780228	63	57	69	29.65
33032	2D37M32109937	045	498	350	8	2	2	2	1	2	1	2	1	2	1	2	A	050495	780308	51	64	30.15	10	780308	70	64	72	30.24
33033	1D35H32404122	043	482	350	8	2	2	2	1	2	1	2	1	2	1	2	A	056587	780309	49	74	30.05	10	780309	65	60	75	30.14
33034	3J57K34413348	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	E	071766	780327	58	85	29.95	00	780327	68	60	62	29.96
33036	1N35R3C156771	043	472	400	8	2	2	1	1	2	1	1	1	2	1	2	C	070102	780413	50	70	29.70	00	780413	62	51	45	29.86
33037	4P39T3C124020	041	462	455	8	2	3	2	1	2	1	2	1	2	1	2	E	030271	780413	52	72	29.70	05	780413	51	50	94	29.82
33038	PHY3M3D266819	023	275	400	8	2	2	1	1	2	1	1	2	2	1	2	E	053421	780414	47	95	29.70	05	780414	60	52	58	29.74
33039	1X69F3C200505	043	486	307	8	2	2	2	1	2	1	1	1	2	1	2	E	021676	780417	50	84	29.65	05	780417	60	53	63	30.06
33040	3J54198131	031	341	400	8	2	2	2	1	2	1	2	2	2	1	2	F	092715	780417	47	89	29.95	00	780417	66	56	53	30.07
33041	LH41C3R147187	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	L	039225	780411	55	56	30.15	00	780411	66	51	32	30.27
33042	4D37H32155986	041	418	350	8	2	3	2	1	2	1	1	1	2	1	2	K	057229	780621	63	64	30.05	20	780621	69	60	59	30.00
33043	4V37T3H486296	041	418	455	8	2	3	1	1	2	1	2	1	2	1	2	A	054914	780803	81	55	29.95	10	780803	86	74	57	29.96
43002	1X69H4.135820	043	486	350	8	2	2	2	1	2	2	1	1	2	1	2	A	015640	771006	60	88	30.05	13	771006	72	71	91	30.22
43003	4F032198447	031	348	170	6	2	2	2	1	2	2	2	1	2	1	2	A	050137	771014	56	74	30.10	20	771014	76	65	55	30.14
43004	4338H180089	031	373	351	8	2	2	2	1	2	2	2	2	2	1	2	J	022195	771018	56	85	29.95	40	771018	71	63	64	29.98
43005	4P39J4C105059	041	462	455	8	2	3	1	1	2	1	2	1	2	1	2	A	098003	771102	49	99	30.15	00	771102	72	68	82	29.88
43006	3J57K44198966	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	033247	771115	56	81	30.10	14	771115	65	53	50	30.20
43007	LH23C4G160811	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	A	040652	771117	46	79	30.25	03	771117	71	58	45	30.26
43008	4R12Y140516	031	349	140	4	2	2	2	1	2	2	2	1	2	1	2	A	042457	771121	38	53	29.65	05	771121	70	65	72	29.72
43009	1426344444457	600	604	121	4	1	5	2	1	2	2	2	2	2	2	2	A	051817	771130	46	93	30.47	05	771130	75	72	86	30.42
43010	RP23G4G158132	023	275	318	8	2	2	1	1	2	1	2	2	2	1	2	A	039645	771130	46	85	30.32	07	771130	66	65	95	30.06
43011	4J66S103350	031	345	400	8	2	2	2	1	2	1	2	1	2	1	2	A	037432	771201	56	99	29.00	25	771201	70	68	90	29.84
43012	TE28551698	570	570	097	4	1	2	2	1	2	2	1	2	2	2	2	A	055913	771208	39	90	29.90	10	771208	79	76	87	30.03
43013	HLB210017937	380	380	076	4	2	2	2	1	2	2	1	2	2	1	2	A	036940	771213	52	99	29.50	08	771213	64	63	95	29.53
43014	4X12Y247367	031	349	140	4	2	2	2	1	2	1	2	1	2	1	2	M	022995	771214	52	99	29.40	11	771219	67	62	75	30.36
43015	3J57K44136336	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	029874	771214	52	99	29.50	10	771214	68	65	85	29.51
43016	1142521507	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	024920	771227	39	68	30.00	20	771227	54	53	95	29.92
43017	3J57K44222113	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	043214	771228	39	72	29.75	10	771228	73	68	78	29.88

APPENDIX A - LISTING OF VEHICLES

1972 - 74 PORTLAND PASS

																			------DEQ	DATA------				-----HTS	DATA------			
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
43018	4J76S130108	031	313	400	8	2	2	2	1	2	1	2	1	2	1	2	A	094188	780112	50	87	30.15	25	780112	67	60	66	30.00
43019	VH23C4G156944	023	285	225	6	2	1	1	1	2	1	2	2	2	1	2	A	024081	780124	40	90	30.25	15	780124	65	55	52	30.36
43020	1342311102	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	040459	780126	42	99	30.20	10	780126	62	55	64	30.26
43021	HLB31000304	380	380	078	4	2	2	2	1	2	2	1	2	2	1	2	A	023713	780127	40	97	30.30	15	780127	61	54	63	30.01
43022	4R12Y131139	031	349	140	4	2	2	2	1	2	1	2	1	2	1	2	A	023407	780131	42	99	29.90	05	780131	69	62	67	29.78
43023	1H57H4Z449633	043	483	350	8	2	2	2	1	2	1	2	1	2	1	2	V	022075	780203	50	99	29.90	10	780203	64	60	79	30.11
43024	1H57H4K473001	043	483	350	8	2	2	2	1	2	1	2	1	2	1	2	A	049228	780313	50	77	30.10	10	780313	66	62	80	30.39
43025	1D37H4K463294	043	482	350	8	2	2	1	1	2	1	2	1	2	1	2	A	063696	780322	62	68	29.70	10	780322	60	55	73	29.75
43026	1N47R4C149560	043	478	400	8	2	2	1	1	2	1	1	1	2	1	2	E	052979	780406	44	89	29.75	20	780406	75	70	78	29.82
43027	6D49R4J225850	042	425	472	8	2	3	1	1	2	1	2	1	2	1	2	E	060411	780407	54	65	29.95	15	780407	72	57	38	30.05
43029	VL29C4G233059	023	285	225	6	2	1	1	1	2	2	2	2	2	1	2	E	039682	780621	64	62	30.00	05	780621	76	64	51	30.08
43030	1D35H4R503249	043	482	350	8	2	2	2	1	2	1	2	1	2	1	2	A	029076	781026	51	72	30.20	00	781026	73	59	42	30.13
43031	6D47R4J173710	042	425	472	8	2	3	2	1	2	1	2	1	2	1	2	A	034803	781228	36	43	30.05	90	781228	71	55	33	30.14

APPENDIX A - LISTING OF VEHICLES

1975 - 77 PORTLAND PASS

EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	------DEQ DATA------ DATE	F	RH	BARO	QT	-----HIS DATA------ DATE	DB	WB	RH	BARO
54004	5H42H161582	031	373	351	8	2	2	1	1	2	1	2	1	1	1	2	A	029353	770923	58	90	30.05	07	770923	71	65	72	29.74
54005	1H57H52435952	043	483	350	8	2	2	1	1	2	1	2	2	1	1	2	V	025488	771005	64	62	30.10	00	771005	74	70	82	29.92
54006	5W81F152320	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	A	018148	771007	59	99	30.05	00	771007	79	76	96	30.20
54007	5W81F170325	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	A	043514	771007	59	99	30.05	03	771007	73	69	82	30.20
54008	5W38F520209	033	392	302	8	2	2	1	1	2	1	2	1	1	1	2	M	015619	771004	65	36	29.95	26	771004	69	66	85	29.92
54009	5W81L156375	031	342	250	6	2	1	1	1	2	1	2	1	1	1	2	V	034195	771012	58	64	30.05	01	771012	66	56	54	30.22
54010	5W34F527762	033	392	302	8	2	2	1	1	2	1	2	1	1	1	2	A	042099	771014	64	78	30.05	10	771014	67	58	58	30.17
54011	3X39T5M357030	044	448	455	8	2	3	1	1	2	1	2	2	1	1	2	A	045295	771021	60	82	30.10	15	771021	70	65	77	30.02
54012	3J57K5M234564	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	025353	771114	57	97	30.02	14	771114	67	64	85	30.20
54013	5T20Y537804	033	331	140	4	1	2	1	1	2	2	2	1	2	1	2	A	021041	771114	44	99	30.15	00	771114	65	57	61	30.12
54014	RH41G5A159016	023	275	318	8	2	2	1	1	2	1	1	2	1	1	2	E	072277	771121	36	55	29.70	05	771121	73	68	78	30.08
54015	5J63H154325	031	345	351	8	2	2	1	1	2	1	2	1	1	1	2	A	009126	771130	47	85	30.35	00	771130	70	67	86	30.38
54016	5G21S176991	031	316	400	8	2	2	1	1	2	1	2	1	1	1	2	A	015941	771130	49	83	30.47	10	771130	73	70	86	30.38
54017	TE310100490	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	042685	771205	40	87	29.90	00	771205	66	65	95	29.70
54018	VH29G5G107402	023	285	225	6	2	1	1	1	2	2	1	2	1	1	2	A	014628	771213	57	99	29.45	20	771213	66	65	95	29.68
54019	HLB210635421	380	380	085	4	1	2	2	1	2	1	2	1	2	1	2	L	032276	771214	50	99	29.50	09	771214	70	68	90	29.53
54020	HLB210074213	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	019058	771214	52	99	29.45	03	771214	69	66	85	29.40
54021	A5C667E276352	010	112	232	6	2	1	1	1	2	2	2	2	2	1	2	V	028012	771216	45	99	29.75	10	771216	66	65	95	30.36
54022	5K91L140674	031	347	250	6	2	1	1	1	2	2	2	1	1	1	2	A	004468	771229	38	53	29.70	25	771229	63	60	84	29.98
54023	5F04Y119290	031	348	140	4	1	2	1	1	2	2	2	1	2	1	2	A	042304	780105	46	95	29.25	15	780105	71	69	99	29.44
54024	VH41C5B343522	023	285	225	6	2	1	1	1	2	2	1	2	1	1	2	K	041688	780105	48	99	29.40	10	780105	65	63	90	29.50
54025	VP41C5F177306	023	285	225	6	2	1	1	1	2	1	1	2	1	1	2	V	023378	780106	44	99	30.00	10	780106	71	67	81	30.03
54026	SGL1003530	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	B	036496	780106	46	98	30.00	15	780106	73	71	91	29.76
54027	5K92L138680	031	347	250	6	2	1	1	1	2	2	2	1	1	1	2	A	030068	780109	48	96	29.75	25	780109	68	66	90	29.74
54028	1152017710	590	590	097	4	1	5	2	1	2	2	2	1	2	2	2	A	036034	780109	46	99	29.70	20	780109	57	56	94	29.82
54029	5P68H171919	031	345	351	8	2	2	1	1	2	1	2	1	1	1	2	A	033817	780110	48	93	29.70	25	780110	73	71	91	29.87
54030	TE37507923	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	026110	780111	48	84	29.80	25	780111	57	58	99	29.88
54031	HLB210531752	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	B	031929	780112	48	91	30.10	10	780112	69	65	81	30.02
54032	1V11B5C110343	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	A	025435	780113	42	91	30.00	10	780113	71	65	72	29.92
54033	SGA1008989	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	C	104597	780113	44	95	29.70	25	780113	65	62	85	29.60
54034	S8C3350311	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	J	043498	780328	55	88	29.90	40	780328	72	63	61	29.94
54035	1L39H51100870	043	478	350	8	2	2	1	1	2	1	2	2	1	1	2	D	043593	780403	60	50	29.50	10	780403	69	61	63	29.64
54036	RT105016010	570	573	133	4	1	2	2	1	2	2	2	2	1	1	2	J	023567	780404	50	86	29.70	10	780404	67	60	66	29.90
54037	RT119001585	570	573	133	4	1	2	2	1	2	2	2	2	1	1	2	A	035821	780411	52	65	30.25	05	780411	65	53	44	30.30
54038	TE38013359	570	571	097	4	1	2	2	1	2	2	2	1	2	2	2	C	047277	780411	52	64	30.20	05	780411	70	54	33	30.26
54039	5G30H188389	031	343	351	8	2	2	1	1	2	1	2	1	1	1	2	D	062100	780411	54	67	30.25	05	780411	62	51	45	30.20
54040	5R11Y126528	031	349	140	4	1	2	1	1	2	2	2	1	2	1	2	C	026309	780419	53	83	29.75	15	780419	59	50	52	29.89
54041	5G21H141408	031	316	351	8	2	2	1	1	2	1	2	1	1	1	2	B	035071	780419	53	87	29.75	00	780419	65	53	44	29.87
54042	5R03Z142339	031	348	171	6	2	2	1	1	2	2	2	1	1	1	2	H	031663	780502	62	69	30.05	15	780502	75	59	37	30.16
54043	HLB210611478	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	H	029202	781220	39	70	30.15	60	781220	70	52	25	30.36
54044	1352267162	590	590	097	4	1	5	2	1	2	2	2	1	2	2	2	A	016355	790104	33	52	30.20	15	790104	74	57	34	30.37
64002	RT105019397	570	573	133	4	1	2	1	1	2	2	2	2	1	1	2	B	024034	771007	58	96	30.18	25	771007	72	70	91	30.21
64003	6S69K604484837	042	429	350	8	2	5	1	1	2	1	2	1	1	1	2	V	025216	771028	56	96	29.70	05	771028	67	64	85	29.72
64004	A6A087A240659	010	108	258	6	2	1	1	1	2	1	2	1	2	1	2	A	007406	771109	56	60	30.00	04	771109	71	68	90	30.08
64005	6W84L181175	031	342	250	6	2	1	1	1	2	1	2	1	1	1	2	A	017084	771110	58	83	30.00	04	771110	72	70	95	30.04
64006	VP41G6B133386	022	254	318	8	2	2	1	1	2	1	2	2	1	1	2	V	030286	771110	59	85	29.95	01	771110	72	69	85	29.98
64007	6G25H142357	031	373	351	8	2	2	1	1	2	2	2	1	1	1	2	A	026952	771114	52	92	30.15	07	771114	67	65	90	30.20
64008	6R12Y124124	031	349	140	4	1	2	1	1	2	2	2	1	1	1	2	A	011539	771121	39	51	29.70	02	771121	69	63	72	29.72
64009	VH23G6G157521	023	285	225	6	2	1	1	1	2	2	2	2	1	1	2	A	033434	771128	50	96	30.10	04	771128	71	67	81	30.18
64011	4X39Y6H468725	041	418	455	8	2	3	1	1	2	1	2	2	1	1	2	A	015377	771129	51	76	30.42	07	771129	80	76	83	30.44

APPENDIX A - LISTING OF VEHICLES

1975 - 77 PORTLAND PASS

																			------DEQ DATA------					-----HTS DATA------				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
64012	6X11Y180253	031	349	140	4	1	2	1	1	2	2	2	1	1	1	2	A	026675	771201	52	90	30.00	00	771201	74	72	91	29.97
64013	1B08E6Y171295	043	489	098	4	2	1	1	1	2	2	2	2	1	1	2	A	025724	771201	54	98	29.90	15	771201	71	69	90	29.84
64014	6F04Y134957	031	348	140	4	2	2	1	1	2	2	2	1	1	1	2	A	032038	771207	39	89	29.59	28	771207	76	73	87	30.10
64015	1H57V6Z427137	043	483	350	8	2	2	1	1	2	1	2	2	1	1	2	B	031103	771207	39	91	29.59	10	771207	64	63	95	30.12
64016	SGC2004749	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	A	026245	771208	38	83	30.10	05	771208	72	70	91	30.21
64017	HLB210903059	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	015502	771209	39	92	29.90	10	771209	67	65	90	29.86
64018	1B08E6Y252723	043	489	098	4	1	1	1	1	2	1	2	2	1	1	2	V	025538	771214	56	97	29.50	05	771214	75	72	82	29.87
64019	A6A667A338247	010	112	258	6	2	1	1	1	2	1	2	2	2	1	2	V	025635	771214	53	99	29.50	04	771214	71	68	86	29.34
64020	1R07B6C118251	043	484	140	4	1	2	1	1	2	2	2	2	1	1	2	A	020083	771215	44	94	29.70	00	771215	68	67	95	29.80
64021	SBC4103657	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	K	007751	780314	49	77	30.30	20	780314	67	62	75	30.38
64022	6W81F184253	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	A	019656	771220	42	65	30.25	35	771220	71	69	90	30.20
64023	1X27D6L124315	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	026243	771220	42	58	30.10	10	771220	71	69	90	30.16
64024	6J68S108750	031	345	400	8	2	2	1	1	2	1	2	1	1	1	2	B	030892	771228	36	90	29.70	10	771228	77	75	91	29.86
64025	6S69R6Q504386	042	429	350	8	2	5	1	1	2	1	2	1	1	1	2	D	011636	780329	57	83	29.77	25	780329	62	57	74	30.04
64026	TE38037525	570	571	097	4	1	2	2	1	2	2	2	1	2	2	2	A	023119	780104	41	85	29.30	00	780104	71	69	90	29.37
64027	VC24245E30840	600	600	130	4	1	5	1	1	2	2	2	1	2	2	2	V	023609	780105	44	93	29.25	30	780105	69	67	90	29.32
64028	HLB210725119	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	C	030994	780411	69	50	29.83	05	780411	63	52	46	30.32
64029	1763019579	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	A	030329	780105	48	98	29.40	10	780105	65	63	90	29.50
64030	TE370541647	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	032969	780105	47	99	29.45	30	780105	70	68	90	29.55
64031	6X10Y136488	031	349	140	4	2	2	1	1	2	2	2	1	1	1	2	A	014954	780105	46	99	29.50	20	780105	66	65	95	30.03
64032	TE37538876	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	014740	780106	44	99	30.00	10	780106	65	64	95	30.05
64033	TE37135804	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	032017	780106	46	89	30.00	30	780106	68	68	95	30.08
64034	HLB210903980	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	007588	780106	46	95	30.00	15	780106	74	72	99	29.73
64035	1763303123	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	V	019210	780109	44	98	29.75	25	780109	71	68	86	29.74
64036	6G21H133195	031	316	351	8	2	2	1	1	2	1	2	1	1	1	2	A	015373	780109	44	99	29.75	15	780109	74	70	82	29.72
64037	VC24445E10669	600	600	130	4	1	5	1	1	2	1	2	1	2	2	2	V	015048	780109	48	90	29.70	20	780109	69	66	85	29.74
64038	6G21H124514	031	316	351	8	2	2	1	1	2	1	2	1	1	1	2	A	015740	780110	50	82	29.75	25	780110	61	58	84	29.88
64039	TE31094565	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	V	025768	780112	44	99	30.20	25	780112	66	62	85	30.16
64040	1763034004	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	A	030055	780112	44	99	30.20	25	780112	65	61	80	30.15
64041	TE37537606	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	024722	780112	46	89	30.10	00	780112	68	63	76	30.02
64042	HLB210907182	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	015967	780116	48	87	29.30	25	780116	65	63	99	29.34
64043	3J57R6M157432	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	B	026496	780216	44	88	30.10	20	780216	70	62	64	30.09
64045	6K92L140694	031	347	250	6	2	1	1	1	2	1	2	1	1	1	2	B	022699	780411	52	65	30.25	05	780411	60	48	39	30.26
64047	6W81L160102	031	342	250	6	2	1	1	1	2	1	2	1	1	1	2	C	024008	780412	50	70	30.00	00	780412	73	55	29	30.13
64048	1H57V6Z426728	043	483	350	8	2	2	1	1	2	1	2	2	1	1	2	B	026502	780414	46	94	29.70	05	780414	62	52	50	29.77
64049	RT119020545	570	573	133	4	1	2	2	1	2	1	2	2	1	1	2	D	019551	780420	54	82	29.74	25	780420	63	52	46	29.88
64050	6R04Z161061	031	348	171	6	2	2	1	1	2	1	2	1	1	1	2	G	011712	780425	63	77	29.55	15	780425	69	60	59	29.78
64051	6R11Y157047	031	349	140	4	1	2	1	1	2	2	2	1	1	1	2	G	012578	780425	63	77	29.55	00	780425	73	63	57	29.78
64052	6D47S6J187817	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	A	036355	780425	64	72	29.75	25	780425	72	65	69	29.78
64053	TE37535959	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	M	028670	780721	86	36	29.88	15	780721	95	76	41	29.84
64054	3J57R6M353628	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	E	010684	781102	51	68	30.25	25	781102	71	57	41	30.25
64055	1D29V6Z416975	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	M	064441	781128	52	71	30.20	10	781128	62	54	59	30.16
64056	6F02Y205307	031	348	140	4	1	2	1	1	2	2	2	1	1	1	2	E	035503	781130	55	71	30.00	13	781130	69	59	55	29.90
64057	8462048115	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	B	025528	781212	43	68	30.50	20	781212	75	58	34	30.48
64058	4P69J6X146660	041	462	350	8	2	3	1	1	2	1	2	2	1	1	2	F	071131	781213	44	50	29.95	05	781213	85	61	25	30.40
64059	SGL2037245	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	E	033484	781213	40	58	30.50	00	781213	66	52	36	30.30
64060	4D29L6Z108666	041	417	231	6	2	2	1	1	2	1	2	2	1	1	2	M	037385	781215	40	71	30.25	05	781215	73	57	35	30.38
74002	3K57R7M233924	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	012689	771013	58	72	30.10	10	771013	70	58	51	30.24
74003	3H35R7R152413	044	494	350	8	2	3	1	1	2	2	2	2	1	1	2	A	008827	771013	56	78	30.20	00	771013	74	58	36	30.25
74004	7P65S132065	031	345	400	8	2	2	1	1	2	1	2	2	1	1	2	A	009352	771018	58	94	29.90	10	771018	68	59	58	30.06

```
                         APPENDIX A - LISTING OF VEHICLES

                              1975 - 77  PORTLAND  PASS

                                                                                  ------DEQ DATA------   -----HTS DATA------
EPA NO VEH IDENT NO  MAKE MODL  CID C T F EI CA CE AC EM AS CC ES TR TAG  ODOM   DATE   F RH BARO  QT  DATE   DB WB RH BARO

74005  NL45D7G111229  022  254  225 6 2 2  1  1  2  2  2  1  1  1  2  A   008423 771108 43 89 30.30 02 771108 72 69 90 30.10
74006  7W35F512799    033  392  302 8 2 2  1  1  2  1  2  2  1  1  2  A   008123 771128 50 95 30.10 06 771128 63 61 89 30.18
74007  HP29U7B254885  023  287  225 6 2 2  1  1  2  1  2  1  1  1  2  A   007408 771129 53 70 30.35 10 771129 69 66 85 30.45
74009  SBC5018731     260  261  076 4 1 2  2  1  2  2  2  1  2  2  2  A   008294 771207 40 83 29.90 08 771207 75 72 86 30.25
74010  1L47U7C115290  043  478  305 8 2 2  1  1  2  1  2  2  1  1  2  A   013219 771207 39 83 30.05 20 771207 77 70 74 30.20

74011  3372069842     590  593  097 4 1 5  2  1  2  2  2  2  2  1  2  A   012574 771212 48 93 29.80 00 771212 73 70 86 29.88
74012  HLB210926812   380  380  085 4 1 2  2  1  2  2  2  1  2  1  2  A   019353 780105 46 99 29.50 00 780105 75 73 91 30.03
74014  7W81F143956    031  342  302 8 2 2  1  1  2  1  2  2  1  1  2  A   004606 780112 50 88 30.20 20 780112 69 62 67 30.15
74015  7J87S130174    031  372  400 8 2 2  1  1  2  1  2  2  1  1  2  A   007841 780113 40 93 29.80 10 780113 70 65 77 29.82
74016  RA24057377     570  572  133 4 1 2  2  1  2  2  2  1  2  1  2  L   008520 780216 46 75 30.00 11 780216 66 59 70 30.08

74017  KA29069628     570  572  133 4 1 2  1  1  2  2  2  1  2  1  2  A   009998 780113 44 94 29.80 08 780113 75 76 99 29.30
74018  7J65S107144    031  345  400 8 2 2  1  1  2  1  2  2  1  1  2  J   014761 780221 51 86 30.30 05 780221 64 59 74 30.32
74019  SBC5011537     260  261  076 4 1 2  2  1  2  2  2  1  2  2  2  B   012284 780314 49 77 30.30 00 780314          30.36
74020  HH4567G118892  023  287  318 8 2 2  1  1  2  1  2  1  1  1  2  K   012196 780405 50 83 29.63 05 780405 59 55 78 29.88
74021  7P74S132069    031  313  400 8 2 2  1  1  2  1  2  2  1  1  2  A   024229 780116 47 85 29.30 25 780116 67 63 80 29.32

74023  RA29060984     570  572  133 4 1 2  2  1  2  1  2  1  2  1  2  L   022223 780228 48 73 29.70 20 780228 77 67 59 29.80
74024  RA29075877     570  572  133 4 1 2  2  1  2  2  2  1  2  1  2  A   029420 780304 44 70 29.25 00 780304 63 59 79 30.04
74025  HL4567B185768  023  287  318 8 2 2  1  1  2  2  2  1  1  1  2  K   017032 780405 50 83 29.63 05 780405 60 56 78 29.86
74026  1H57L72427651  043  483  350 8 2 3  1  1  2  1  2  2  1  1  2  M   025999 780410 54 33 29.96 05 780410 67 55 45 30.10
74027  3J57R74233368  044  494  350 8 2 3  1  1  2  1  2  2  1  1  2  A   027330 780418 54 84 29.90 00 780418 69 58 51 29.82

74028  NH4567B123282  022  254  318 8 2 2  1  1  2  2  2  1  1  1  2  K   017329 780420 52 66 29.75 20 780420 58 52 66 29.96
74031  HH4567B473336  023  287  318 8 2 2  1  1  2  1  2  1  1  1  2  H   016650 780928 69 47 30.20 10 780928 84 66 37 30.19
74032  RA24070199     570  572  133 4 1 2  2  1  2  2  2  1  2  1  2  B   010840 781229 32 35 30.10 75 781229 58 45 32 30.32
```

APPENDIX A - LISTING OF VEHICLES

1972 - 74 PORTLAND FAIL

																			DEQ DATA					HTS DATA				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATF	DB	WB	RH	BARO
25001	2H30H247646	031	343	351	8	2	2	2	1	2	2	1	2	2	2	2	V	072476	770927	65	87	29.90	24	770927	69	66	85	29.90
25002	1V7762J273054	043	488	140	4	1	2	2	1	2	2	2	1	2	2	2	A	020896	771005	60	58	29.85	30	771005	72	69	86	29.92
25003	6D47R2J178958	042	425	472	8	2	3	2	1	2	1	2	1	2	2	2	A	052691	771027	58	86	29.59	00	771027	82	71	55	29.78
25004	2F01F124680	031	348	302	8	2	2	2	1	2	2	1	2	2	2	2	A	034334	771102	51	92	30.15	04	771102	71	69	90	30.22
25005	3J39K22112931	044	494	350	8	2	3	2	1	2	1	1	2	2	2	2	A	091033	771115	55	83	30.10	23	771115	65	53	44	30.22
25006	1N47R2L146763	043	472	400	8	2	2	2	1	2	1	1	1	2	2	2	A	082271	771121	38	53	29.65	00	771121	73	68	78	30.10
25007	LH23G2R303912	022	227	318	8	2	2	1	1	2	2	1	2	2	2	2	A	049475	771129	52	70	30.35	10	771129	67	65	90	30.28
25008	2A30F353330	031	343	302	8	2	2	2	1	2	2	1	2	2	2	2	A	071349	771201	51	93	30.00	05	771201	73	70	86	29.98
25009	1X69F2L120275	043	486	307	8	2	2	2	1	2	2	1	2	2	2	2	A	047830	771201	54	90	30.00	00	771201	72	70	91	29.96
25010	PL510935339	380	388	097	4	1	2	2	2	1	2	1	2	2	2	2	A	082634	771206	50	93	29.51	15	771206	77	75	91	29.72
25011	A2A465A113024	010	107	258	6	2	1	2	1	2	2	1	2	2	2	2	V	078911	771213	56	99	29.45	35	771213	73	70	86	29.52
25012	2P67S100496	031	345	400	8	2	2	2	1	2	1	1	2	2	2	2	A	050950	771214	54	99	29.50	08	771214	75	70	78	29.36
25013	2J74H176682	031	313	351	8	2	2	2	1	2	2	1	2	2	2	2	C	080695	771215	43	95	29.55	03	771215	68	63	76	30.34
25014	LH23G2R323355	022	227	318	8	2	2	2	1	2	2	1	2	2	2	2	A	056270	771219	44	90	30.45	03	771219	73	71	91	30.25
25015	LB110906731	380	389	072	4	1	2	2	2	1	2	1	2	2	2	2	A	082886	771229	40	98	29.70	40	771229	65	63	90	30.00
25016	1X27D2L119805	043	486	250	6	2	1	2	1	2	2	2	1	2	2	2	A	035630	780110	46	92	29.80	35	780110	66	65	95	29.80
25017	2H31H147619	031	343	351	8	2	2	2	1	2	1	1	2	2	2	2	A	070982	780116	48	89	29.30	20	780116	62	60	89	29.35
25019	2H43H113704	031	373	351	8	2	2	2	1	2	1	1	2	2	2	2	A	057663	780118	48	80	29.75	20	780118	69	59	55	29.74
25020	2R11X148364	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	061666	780124	40	99	30.20	20	780124	64	55	56	30.27
25021	LB110291353	380	389	072	4	1	2	2	2	1	2	1	2	2	2	2	A	047433	780126	42	99	30.20	20	780126	72	60	49	30.26
25022	A2A197H168183	010	111	304	8	2	2	2	1	2	1	1	2	2	2	2	D	071834	780202	48	97	29.80	05	780202	64	59	74	29.78
25023	2H42F159414	031	373	302	8	2	2	2	1	2	2	1	2	2	2	2	A	045932	780208	52	60	29.25	20	780208	64	56	60	29.72
25024	A2A157H323332	010	111	304	8	2	2	2	1	2	2	1	2	2	2	2	D	077944	780209	42	79	29.70	05	780209	60	53	63	29.90
25025	2R11X138120	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	069980	780224	53	83	29.90	10	780224	60	57	83	29.94
25026	PL510972300	380	388	097	4	1	2	2	2	1	2	1	2	2	2	2	A	134381	780411	54	55	30.15	05	780411	62	50	41	30.18
25027	A2A157H195418	010	111	304	8	2	2	2	1	2	1	1	2	2	2	2	D	056583	780304	40	92	29.50	00	780304	74	65	61	29.44
25028	2D37M2P136889	045	498	350	8	2	2	2	1	2	2	2	1	2	2	2	A	042590	780304	46	72	29.45	00	780304	63	50	37	30.50
25029	2X12X344371	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	072009	780310	50	76	30.05	15	780310	63	58	74	29.98
25030	2R11X128581	031	349	122	4	1	2	2	1	2	2	1	2	2	2	2	A	050860	780310	50	78	30.05	15	780310	65	59	70	30.24
25031	2L35R2C321637	045	453	400	8	2	2	2	1	2	1	1	2	2	2	2	E	082768	780320	60	70	30.00	10	780320	72	60	49	29.98
25032	1N47R2C167363	043	472	400	8	2	2	2	1	2	1	1	2	2	2	2	E	058210	780322	67	58	29.65	00	780322	68	60	62	29.86
25033	2N45W2C323125	045	452	455	8	2	3	2	1	2	1	1	2	2	2	2	E	056484	780328	60	77	29.82	40	780328	68	61	67	29.89
25034	1X27F2L135135	043	486	307	8	2	2	2	1	2	2	1	2	2	2	2	E	026239	780329	57	83	29.77	20	780329	68	62	67	29.90
25035	1M69H2C182494	043	478	350	8	2	2	2	1	2	1	2	1	2	2	2	E	067059	780406	44	90	29.75	20	780406	69	64	72	29.82
25036	1M69R2C186055	043	478	400	8	2	2	2	1	2	1	1	2	2	2	2	E	057189	780411	56	55	30.30	10	780411	63	50	37	30.26
25037	VL29G2839321	023	285	225	6	2	1	2	1	2	2	1	2	2	2	2	E	040508	780413	47	95	29.70	00	780413	58	50	56	29.80
25038	1L35H2C128163	043	478	350	8	2	2	2	1	2	1	2	1	2	2	2	A	134742	780419	56	81	29.75	10	780419	71	58	45	29.84
25039	762000	042	425	472	8	2	3	2	1	2	1	2	1	2	2	2	F	070390	780501	64	62	30.05	20	780501	74	59	39	30.14
25040	1H57J2L511093	043	483	350	8	2	2	2	1	2	1	2	1	2	2	2	K	093715	780515	60	75	29.75	15	780515	69	57	47	29.92
35001	3P62H125539	031	345	351	8	2	2	2	1	2	1	2	2	2	1	2	A	055248	771006	60	91	29.90	05	771006	70	67	86	30.18
35002	WH45G3G150919	022	225	318	8	2	2	1	1	2	2	2	2	2	1	2	A	055073	771014	64	78	30.05	10	771014	68	59	58	30.17
35003	LL29G38281324	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	A	042924	771019	56	98	30.00	08	771019	71	63	64	30.01
35004	PH45M3D188934	023	277	400	8	2	2	1	1	2	1	1	2	2	1	2	A	084320	771021	60	93	29.95	09	771021	69	62	67	30.04
35005	3X12X104641	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	025465	771021	63	70	30.10	00	771021	63	55	60	30.18
35006	1K69H3L104699	043	436	350	8	2	2	2	1	2	1	2	1	2	1	2	A	090957	771104	48	70	30.59	00	771104	71	68	86	29.58
35007	1V1583U252876	043	488	140	4	1	2	2	1	2	1	2	2	2	1	2	A	024002	771101	58	94	29.60	00	771101	75	73	86	30.22
35008	3K31F522046	033	334	302	8	2	2	2	1	2	1	2	2	2	1	2	A	044949	771109	57	56	30.00	18	771109	74	71	91	30.08
35009	3J29K3M196140	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	042826	771114	56	93	30.10	31	771114	69	68	99	30.18
35010	2J74S115897	031	313	400	8	2	2	2	1	2	1	2	2	2	1	2	A	042114	771116	47	78	30.25	04	771116	73	58	39	30.34
35011	WH41G3G149875	022	225	318	8	2	2	1	1	2	2	2	2	2	1	2	A	068997	771215	48	90	29.25	35	771215	68	65	85	29.64

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                              APPENDIX A - LISTING OF VEHICLES

                                 1972 - 74  PORTLAND  FAIL

                                                                                   ------DEQ DATA------       -----HTS DATA------
EPA NO VEH IDENT NO  MAKE MODL  CID C T F EI CA CE AL EM AS CC ES TR TAG  ODOM   DATE    F RH BARO   QT  DATE   DB WB RH BARO
35012  1332625769     590  590  097 4 1 1 2  1  2  2  1  2  2  2  2  V   053970 771219 40 92 30.25 00 771219 69 67 90 30.30
35014  VL29G3B271170  023  285  318 8 2 2 2  1  2  1  2  2  2  1  2  A   036933 771229 36 96 29.80 20 771229 55 55 99 29.84
35015  3X10X177591    031  349  122 4 2 2 2  1  2  2  1  2  2  2  2  A   054822 780110 48 90 29.80 25 780110 69 66 85 29.90
35016  4V39T3H478374  041  418  455 8 2 3 2  1  2  1  2  1  2  1  2  V   068204 780116 44 99 29.35 05 780116 63 55 60 29.76
35017  PH23K3D199519  023  277  300 8 2 2 1  1  2  1  2  2  2  1  2  A   086190 780119 50 83 29.80 20 780119 68 60 62 30.08

35018  3R11X106728    031  349  122 4 2 2 2  1  2  2  1  2  2  2  2  A   078095 780119 45 99 30.00 03 780119 71 59 48 30.42
35019  3R11X103079    031  349  122 4 2 2 2  1  2  2  1  2  2  2  2  A   057258 780126 42 99 30.25 10 780126 63 56 64 30.26
35020  LH23C3B189339  022  227  225 6 2 1 2  1  2  2  2  2  2  1  2  A   052004 780216 42 88 30.10 10 780216 70 60 55 30.10
35021  3X12X174678    031  349  122 4 2 2 2  1  2  2  1  2  2  2  2  A   054950 780215 50 87 30.20 00 780215 63 58 79 30.34
35022  3H42H136375    031  373  351 8 2 2 2  1  2  1  2  2  2  1  2  A   062294 780227 50 96 29.90 20 780227 60 56 78 29.91

35023  1V77B3U352140  043  488  140 4 1 2 2  1  2  2  2  2  2  1  2  E   039843 780321 67 58 29.65 00 780321 68 60 62 29.84
35024  1V77B3U103939  043  488  140 4 1 2 2  1  2  2  2  2  2  1  2  J   051295 780322 58 74 29.75 15 780322 68 61 67 29.82
35025  1E37H3K540816  043  481  350 8 2 2 2  1  2  1  2  1  2  1  2  E   048933 780329 50 88 29.65 15 780329 71 64 68 29.88
35026  PL610805437    380  385  108 4 1 2 2  1  2  2  1  2  2  2  2  A   053831 780329 52 91 29.95 15 780329 64 58 70 30.04
35027  VL29G3G253716  023  227  318 8 2 2 1  1  2  1  2  2  2  1  2  H   037676 780403 60 54 29.52 00 780403 67 62 75 29.85

35028  6D47R3Q259744  042  425  472 8 2 3 2  1  2  1  2  1  2  1  2  E   052014 780405 50 75 29.75 15 780405 62 57 74 29.88
35029  1V15B3U295417  043  488  140 4 1 2 2  1  2  2  2  2  2  1  2  E   068970 780406 52 64 29.73 00 780406 74 60 43 30.05
35030  3H42H231579    031  343  351 8 2 2 2  1  2  2  2  2  2  1  2  L   062909 780413 53 67 29.73 00 780413 57 51 66 29.84
35031  1332681134     590  590  097 4 1 1 2  1  2  2  1  2  2  2  2  E   041153 780414 46 94 29.70 05 780414 64 53 47 29.78
35032  4Y87U3H472238  041  405  455 8 2 3 2  1  2  1  2  1  2  1  2  A   055493 780418 62 66 29.90 05 780418 65 53 44 29.89

35033  6D47R3Q170389  042  425  472 8 2 3 2  1  2  1  2  1  2  1  2  A   040526 780419 60 74 29.65 10 780419 71 58 45 29.86
35034  F3R12X215481   031  349  122 4 2 2 2  1  2  2  1  2  2  2  2  G   056664 780505 60 60 30.22 20 780505 75 58 34 30.26
35035  1V77B3U274478  043  488  140 4 1 2 2  1  2  2  2  2  2  1  2  D   079448 780927 66 55 30.15 00 780927 80 64 41 30.15
45001  1V11B4U182105  043  488  140 4 2 2 2  1  2  2  2  2  2  1  2  A   050815 771014 59 77 30.90 03 771014 65 57 61 30.14
45002  1X27D4L131597  043  486  250 6 2 1 2  1  2  2  2  1  2  1  2  A   014608 771020 56 88 29.98 00 771020 71 65 72 30.18

45003  VL29G4G155979  023  285  318 8 2 2 1  1  2  2  2  2  2  1  2  A   036695 771021 60 82 30.10 14 771021 65 61 80 30.04
45004  3G37M4H302057  044  444  350 8 2 2 2  1  2  1  2  1  2  1  2  A   021295 771026 56 83 30.10 24 771026 75 67 66 29.80
45005  3B27D4L109323  044  449  250 6 2 1 2  1  2  2  2  1  2  1  2  A   052077 771028 52 99 29.60 05 771028 69 65 81 29.78
45006  1V15B4U213294  043  488  140 4 2 2 2  1  2  2  2  2  2  1  2  A   045441 771101 58 92 29.55 05 771101 61 59 89 30.20
45007  1X27D4L153876  043  486  250 6 2 1 2  1  2  2  2  1  2  1  2  A   082050 771108 42 90 30.35 04 771108 68 60 62 30.30

45008  VL29C4B225251  023  285  225 6 2 1 1  1  2  2  2  2  2  1  2  A   058407 771115 50 83 30.00 02 771115 65 53 48 30.40
45009  VH23C4G026928  023  282  225 6 2 1 1  1  2  2  2  2  2  1  2  G   025490 771130 48 89 30.30 05 771130 67 65 90 30.08
45010  4K92L160221    031  347  250 6 2 1 2  1  2  2  2  1  2  1  2  A   036795 771207 40 85 30.00 10 771207 76 73 87 30.22
45011  4F03Y144703    031  348  140 4 2 2 2  1  2  2  2  1  2  1  2  A   078921 771212 50 96 29.70 15 771212 73 70 86 29.80
45012  4R03Z251854    031  348  170 6 2 2 2  1  2  2  2  1  2  1  2  V   033570 771215 44 95 29.40 10 771215 60 58 89 29.78

45013  VL29G4B471918  023  285  318 8 2 2 1  1  2  1  2  2  2  1  2  A   039073 771216 42 99 29.75 15 771216 74 71 85 29.75
45014  1142312962     590  590  097 4 1 1 2  1  2  2  1  2  2  2  2  A   029731 771219 42 85 30.25 05 771219 68 64 80 30.32
45015  4F02Y178846    031  348  140 4 2 2 2  1  2  2  2  1  2  1  2  A   078343 771221 44 60 29.70 00 771221 75 73 91 29.78
45016  4R11Y195717    031  349  140 4 2 2 2  1  2  1  2  1  2  1  2  A   020727 780104 48 98 29.30 00 780104 71 70 95 29.29
45017  1542610689     590  590  097 4 1 1 2  1  2  2  1  2  2  2  2  V   022565 771214 52 99 29.50 10 771214 68 67 95 29.53

45018  4B31M152756    031  343  351 8 2 2 2  1  2  1  2  2  2  1  2  A   038912 780116 44 99 29.40 00 780116 61 55 68 29.80
45019  VL29C4G176388  023  285  225 6 2 1 1  1  2  2  2  2  2  1  2  A   027201 780117 52 83 29.85 10 780117 69 58 51 29.79
45020  4X12Y312098    031  349  140 4 2 2 2  1  2  1  2  1  2  1  2  V   037146 780124 40 92 30.25 00 780124 71 59 48 30.24
45021  VL41G4R172256  023  285  318 8 2 2 1  1  2  1  2  2  2  1  2  A   034134 780223 48 95 30.05 10 780223 63 58 74 30.06
45022  A4A047A242158  010  108  258 6 2 1 2  1  2  1  2  1  2  1  2  A   023396 780224 50 80 29.95 05 780224 62 57 74 29.98

45023  A4A037E258147  010  108  232 6 2 1 2  1  2  2  2  1  2  1  2  A   045837 780310 47 81 30.00 20 780310 64 59 74 30.02
45024  RH23G4G189957  023  281  318 8 2 2 1  1  2  1  2  2  2  1  2  E   057302 780321 65 63 29.70 05 780321 76 64 51 29.76
45025  4X11X257157    031  349  122 4 2 2 2  1  2  2  1  1  2  1  2  E   015158 780328 60 75 29.70 10 780328 60 55 73 29.88
45026  4K91L141825    031  347  250 6 2 1 2  1  2  1  2  1  2  1  2  M   029857 780403 56 75 29.95 00 780403 72 61 56 29.76
45027  1142384683     590  590  097 4 1 1 2  1  2  2  1  2  2  2  2  E   049671 780405 50 73 29.73 15 780405 64 60 79 29.84
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                                         APPENDIX A - LISTING OF VEHICLES

                                              1972 - 74  PORTLAND  FAIL

                                                                                        ------DEQ DATA------     -----HTS DATA------
EPA NO VEH IDENT NO   MAKE MODL   CID C T F EI CA CE AC EM AS CC ES TR TAG  ODOM    DATE    F RH BARO  QT  DATE   DB WB RH BARO

45028  4R12X18 7267    031  349   122 4 2 2  2  1  2  2  1  2  2  1  2  E  039011 780405 49 78 29.65 00 780405 58 54 77 29.86
45029  1142678170      590  590   047 4 1 1  2  1  2  2  1  2  2  2  2  M  001986 780414 46 94 29.70 05 780414 60 51 53 29.80
45030  6D47R4J215865   042  425   472 8 2 3  1  1  2  1  2  1  2  1  2  J  071907 780424 62 59 29.70 10 780424 75 59 37 29.70
45031  HLB210017897    380  380   078 4 2 2  2  1  2  2  1  2  2  1  2  A  054013 780927 69 44 30.20 25 780927 80 64 41 30.16
45032  2F37M4Z102787   045  498   350 8 2 2  2  1  2  1  2  1  2  1  2  A  070886 781012 66 50 30.40 20 781012 71 58 45 30.32

45033  VL29C4G286391   023  285   225 6 2 1  1  1  2  1  2  2  2  1  2  A  023467 781226 39 64 30.05 35 781226 68 54 38 29.98
```

APPENDIX A - LISTING OF VEHICLES

1975 - 77 PORTLAND FAIL

EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DEQ DATA					HIS DATA				
																			DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
56001	VH29C5G189811	023	285	225	6	2	1	1	1	2	2	1	2	1	1	2	A	051032	771129	48	92	30.25	00	771129	70	67	86	30.45
56002	SS22K5R167376	021	210	360	8	2	2	1	1	2	2	1	2	1	1	2	A	039484	771129	51	76	30.42	07	771129	69	65	81	30.46
56003	KH23G5G224484	023	275	318	8	2	2	1	1	2	1	1	2	1	1	2	A	016958	771128	53	80	30.35	04	771128	67	64	85	30.42
56004	5X11Y150054	031	349	140	4	2	2	1	1	2	2	2	1	2	1	2	A	035362	771130	44	87	30.35	05	771130	80	76	87	30.40
56005	LH41C5K178867	022	227	225	6	2	1	1	1	2	1	1	2	1	1	2	A	049268	771201	51	90	30.00	05	771201	73	70	86	30.02
56006	LH23C5G100124	022	227	225	6	2	1	1	1	2	1	1	2	1	1	2	A	017684	771207	42	71	30.05	08	771207	82	70	55	30.12
56007	8452019263	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	A	041739	771212	49	96	29.53	18	771212	67	65	90	29.80
56008	A5A667A335914	010	112	232	6	2	1	1	1	2	1	2	2	2	1	2	V	035565	780116	48	94	29.30	15	780116	50	49	93	29.36
56009	TE31021225	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	032364	771216	46	96	29.70	35	771216	72	68	82	29.78
56010	8552040275	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	A	019490	771220	44	57	30.20	20	771220	74	72	91	29.76
56011	S8C33J7131	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	D	014476	771229	38	90	29.70	25	771229	72	69	85	29.82
56013	1V15B5C111008	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	A	035043	780117	50	93	29.75	15	780117	60	54	68	29.85
56014	1X69D5L101820	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	037187	780117	50	90	29.80	20	780117	61	55	68	29.87
56015	1Y27D5L105547	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	033712	780117	50	90	29.70	25	780117	57	53	77	29.89
56016	1V77B5C107598	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	A	065068	780118	50	89	29.85	00	780118	71	59	48	29.76
56017	1Q29H5Z439088	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	A	061441	780118	48	80	29.70	20	780118	67	58	58	29.71
56018	5H42H161223	031	373	351	8	2	2	1	1	2	1	2	1	1	1	2	A	043966	780125	41	98	30.15	20	780125	56	52	76	30.18
56019	4X39T5H460159	041	418	455	8	2	3	1	1	2	1	2	2	1	1	2	A	032262	780127	39	99	30.20	00	780127	64	58	79	30.24
56020	1Q37H5R417269	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	A	033222	780127	38	97	30.30	20	780127	61	53	58	30.20
56021	WP23K5G147645	022	225	360	8	2	2	1	1	2	1	1	2	1	1	2	B	033139	780215	46	85	30.20	15	780215	60	53	63	30.25
56022	1L39H5J110102	043	478	350	8	2	2	1	1	2	1	2	2	1	1	2	M	027085	780215	46	81	30.20	10	780215	56	52	76	30.25
56023	3L57K5X103260	044	446	350	8	2	3	1	1	2	1	2	2	1	1	2	C	021267	780217	48	95	30.20	10	780217	59	55	78	30.20
56024	5W82L160293	031	342	250	6	2	1	1	1	2	2	2	1	1	1	2	C	019007	780221	48	87	30.30	20	780221	65	60	75	30.35
56025	HLB210543333	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	B	039892	780221	49	86	30.30	05	780221	64	59	74	30.34
56026	6L47S5J167523	042	424	500	8	2	3	1	1	2	1	2	2	1	1	2	A	021493	780221	52	86	30.40	25	780221	67	62	75	30.32
56027	6D49S5J181247	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	A	023873	780227	48	99	30.25	10	780227	69	63	72	29.84
56028	5H31H151707	031	343	351	8	2	2	1	1	2	1	2	1	1	1	2	B	047652	780310	52	72	29.95	00	780310	62	59	84	29.96
56029	1Q37H5Z426328	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	B	024528	780316	51	69	30.20	14	780316	78	63	43	30.24
56030	1552013950	590	590	097	4	1	5	2	1	2	2	2	1	2	2	2	G	032126	780324	54	88	30.00	20	780324	62	57	74	31.20
56031	5J64S139337	031	345	400	8	2	2	1	1	2	1	2	1	1	1	2	E	039877	780327	58	78	30.00	25	780327	74	64	58	30.09
56032	5T122127340	031	349	171	6	2	2	1	1	2	2	2	1	1	1	2	A	041888	780330	55	90	29.95	20	780330	65	59	70	30.40
56033	1V77B5J182103	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	F	040629	780330	51	81	29.90	00	780330	65	57	61	29.68
56034	VH29C5G197556	023	285	225	6	2	1	1	1	2	1	1	2	1	1	2	F	041343	780726	82	54	29.95	20	780726	84	72	56	29.98
56035	5H42H149703	031	373	351	8	2	2	1	1	2	1	2	1	1	1	2	L	082998	780814	66	66	30.20	20	780814	81	66	47	30.16
56036	8552019739	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	B	041837	780823	62	80	29.80	15	780823	82	68	48	29.88
56037	1V77B5C110076	043	488	140	4	2	2	1	1	2	1	2	2	1	1	2	L	046890	780929	70	50	30.10	15	780929	73	64	61	30.08
56038	5W82L165043	031	342	250	6	2	1	1	1	2	2	2	1	1	1	2	C	034546	781005	74	34	30.00	10	781005	84	62	26	30.00
56039	VH29C5G105711	023	285	225	6	2	1	1	1	2	1	1	2	1	1	2	K	042621	781025	54	56	30.10	15	781025	68	54	38	30.04
56040	6J47S5J163138	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	D	089477	781220	40	70	30.15	15	781220	68	56	46	30.34
66001	1Q37J6Z421405	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	A	014295	771004	57	60	29.95	40	771004	74	71	86	29.96
66002	6R112109781	031	349	171	6	2	2	1	1	2	2	2	1	1	1	2	K	020060	771013	63	75	30.10	17	771013	71	61	56	30.20
66003	6W81F130789	031	342	302	8	2	2	1	1	2	2	2	1	1	1	2	A	020168	771019	60	93	29.95	09	771019	68	62	67	30.04
66004	SS22K6R157067	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	A	018701	771027	49	97	29.70	10	771027	69	63	72	29.75
66005	1X69D6L121273	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	032290	771110	56	90	30.05	11	771110	72	69	86	30.01
66006	LL29C6G140620	022	227	225	6	2	1	1	1	2	2	2	2	1	1	2	A	015078	771117	43	89	30.15	17	771117	71	57	41	30.25
66007	HH45C6B113264	023	287	225	6	2	1	1	1	2	1	2	2	1	1	2	A	016459	771128	50	92	30.15	05	771128	70	67	86	30.20
66008	LH23C6F122064	022	227	225	6	2	1	1	1	2	1	2	2	1	1	2	A	013183	771128	52	90	30.20	10	771128	70	68	90	30.18
66009	SGC2004373	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	A	058247	771207	40	77	30.05	17	771207	66	66	99	30.22
66010	A6A067A152578	010	108	258	6	2	1	1	1	2	2	2	2	2	1	2	A	025848	771208	39	84	29.90	19	771208	77	75	91	30.04
66011	6H45067000677	022	224	122	4	1	2	2	1	2	2	2	1	2	1	2	A	016434	771213	53	99	29.35	10	771213	66	65	95	29.68

APPENDIX A - LISTING OF VEHICLES

1975 - 77 PORTLAND FAIL

																			DEQ DATA					HTS DATA				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
66012	1763034487	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	V	029116	780123	42	85	30.40	15	780123	74	60	43	30.41
66013	6W81F158276	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	A	024177	771227	35	72	29.95	01	771227	65	63	90	29.90
66014	A6A087E210549	010	108	232	6	2	1	1	1	2	1	2	2	2	1	2	A	025879	771228	36	73	29.90	15	771228	67	63	80	29.90
66015	3362064284	590	593	097	4	1	5	2	1	2	2	2	2	2	1	2	A	026287	771228	38	90	29.75	02	771228	70	68	90	29.84
66016	1Y27D6L103488	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	029887	771230	40	99	30.00	15	771230	74	72	91	29.50
66017	3362047733	590	593	097	4	1	5	2	1	2	1	2	2	2	1	2	A	028251	780105	46	98	29.40	15	780105	69	67	90	29.43
66018	SS22K6R180371	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	A	017494	780109	48	97	29.75	20	780109	73	70	86	29.73
66019	3J57R6422690 0	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	005613	780120	50	99	30.00	10	780120	64	58	65	30.04
66020	2K57W6P197718	045	457	455	8	2	3	1	1	2	1	2	2	1	1	2	A	027986	780125	40	99	30.15	20	780125	74	60	43	30.26
66021	SS22K6R170256	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	A	041026	780127	40	92	30.15	02	780127	58	52	66	30.02
66022	1D37V6Z423806	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	B	026975	780130	46	65	30.00	15	780130	53	49	75	29.90
66023	1D29U6Z429234	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	C	029445	780215	43	90	30.20	16	780215	59	53	67	30.24
66024	4B69C6L111975	041	467	231	6	2	2	1	1	2	2	2	2	1	1	2	B	032601	780217	46	94	30.15	15	780217	61	55	68	30.20
66025	1X69J6K115474	043	486	305	8	2	2	1	1	2	1	2	2	1	1	2	D	010276	780218	48	98	30.25	20	780218	70	63	68	30.35
66026	1V15B6U112088	043	488	140	4	2	2	1	1	2	2	2	2	1	1	2	C	016406	780328	58	76	29.85	05	780328	71	64	68	29.93
66027	1X27D6L136586	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	D	013504	780301	48	56	29.60	15	780301	70	63	68	29.68
66028	6M21K65127141	022	224	098	4	1	2	2	1	2	2	2	1	2	1	2	K	013907	780309	51	68	30.15	15	780309	70	64	72	30.24
66029	4D37C6Z112487	041	417	231	6	2	2	1	1	2	1	2	2	1	1	2	B	023145	780310	52	68	29.90	10	780310	63	58	74	29.95
66030	HLB210835626	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	C	020412	780313	63	70	29.90	00	780313	69	59	55	30.12
66031	HLB210835536	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	C	025412	780404	50	80	30.00	00	780404	58	55	83	29.90
66032	6G21S241748	031	316	400	8	2	2	1	1	2	1	2	1	1	1	2	G	014554	780404	50	80	30.00	10	780404	65	59	70	29.90
66033	1D35V6Z417055	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	B	026240	780404	50	85	29.80	10	780404	57	53	77	29.88
66034	HH45G6B332074	023	287	318	8	2	2	1	1	2	1	2	2	1	1	2	F	036703	780407	58	58	29.93	05	780407	63	51	42	30.12
66035	1X69D6L127200	043	486	305	8	2	2	1	1	2	2	2	2	1	1	2	B	018856	780407	58	58	29.93	10	780407	64	52	43	31.00
66036	1763205860	590	591	097	4	1	1	2	1	2	1	2	1	1	1	2	D	036717	780413	50	73	29.80	05	780413	63	52	46	29.84
66037	SBC4104943	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	K	012676	780414	52	83	29.65	00	780414	70	57	44	30.06
66038	VL29C6G114860	023	285	225	6	2	1	1	1	2	1	2	2	1	1	2	K	018686	780830	73	62	29.85	10	780830	84	71	92	29.82
66039	1H57V6Z461016	043	483	350	8	2	2	1	1	2	1	2	2	1	1	2	F	035772	780914	60	73	30.17	12	780914	76	65	55	30.15
66040	6K91L108020	031	347	250	6	2	1	1	1	2	2	2	1	1	1	2	K	034143	780915	66	46	30.15	15	780915	77	62	42	30.23
66041	5362028334	590	594	057	4	1	1	2	1	2	2	2	1	1	1	2	J	040493	780926	72	56	29.90	20	780926	78	67	56	29.92
66042	SS22K6R112253	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	L	039793	781002	70	44	30.20	02	781002	76	62	44	30.20
66043	6R11Y118826	031	349	140	4	1	2	1	1	2	2	2	1	1	1	2	B	025365	781010	70	45	30.20	30	781010	78	62	39	30.26
66044	1L39V6J253039	043	478	350	8	2	2	1	1	2	1	2	2	1	1	2	D	025460	781103	58	76	30.15	30	781103	69	61	63	30.11
66045	1H57V6Z406765	043	483	350	8	2	2	1	1	2	1	2	2	1	1	2	K	049968	781221	44	80	30.10	25	781221	65	56	56	30.08
66046	6D47S6J290143	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	G	042276	781227	39	64	30.05	30	781227	72	56	34	29.99
66047	6A93H507465	033	399	351	8	2	2	1	1	2	1	2	1	1	1	2	C	049182	781229	32	42	30.10	75	781229	65	50	31	30.32
76001	3K57R7M250386	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	006994	771014	56	75	30.10	20	771014	75	64	54	30.18
76002	3L37R7X110642	044	446	350	8	2	3	1	1	2	1	2	2	1	1	2	A	012701	771102	43	99	30.15	01	771102	72	67	77	29.90
76003	1X27D7K123928	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	011358	771107	50	85	30.30	02	771107	75	72	99	30.09
76004	7W35L501637	033	392	250	6	2	1	1	1	2	2	2	1	1	1	2	A	005895	771116	52	75	30.25	11	771116	74	58	42	30.40
76005	1N35L7C138569	043	472	350	8	2	3	1	1	2	1	2	2	1	1	2	A	012332	771209	40	84	29.95	20	771209	61	60	94	30.04
76006	1773137655	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	A	010266	780106	44	99	30.00	15	780106	70	68	99	29.75
76007	3372074412	590	593	097	4	1	5	2	1	2	2	2	2	2	1	2	B	012199	780111	46	96	29.80	20	780111	62	61	94	29.89
76008	7W38F516984	033	392	302	8	2	2	1	1	2	1	2	2	1	1	2	A	010089	780112	50	86	30.20	20	780112	59	58	89	30.12
76009	7W84F163202	031	342	302	8	2	2	1	1	2	2	2	2	1	1	2	A	019477	780113	44	94	29.80	20	780113	70	63	68	29.79
76010	7W82F156800	031	342	302	8	2	2	1	1	2	1	2	2	1	1	2	A	016492	780110	48	84	29.75	15	780110	64	56	56	29.84
76011	1773079008	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	A	015198	780124	40	90	30.25	00	780124	71	60	52	30.26
76012	1H57J7Z451811	043	483	305	8	2	2	1	1	2	1	2	2	1	1	2	A	011433	780125	40	99	30.15	20	780125	60	54	68	30.17
76013	7W82L151936	031	342	250	6	2	1	1	1	2	2	2	1	1	1	2	A	011019	780126	44	99	30.25	10	780126	73	61	53	30.26
76014	1G29U7Z402049	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	A	009872	780130	48	62	30.90	15	780130	55	50	70	29.90

APPENDIX A - LISTING OF VEHICLES

1975 - 77 PORTLAND FAIL

																			------DEQ DATA------					-----HIS DATA------				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	I	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
76015	1N69L7C152524	043	472	350	8	2	3	1	1	2	1	2	2	1	1	2	A	022532	780201	50	90	29.60	10	780201	61	55	68	29.88
76016	HH45G7G145951	023	287	318	8	2	2	1	1	2	2	2	1	1	1	2	A	013056	780208	50	80	29.50	25	780208	61	54	63	29.38
76017	1L69L7C142073	043	478	350	8	2	3	1	1	2	1	2	2	1	1	2	B	006431	780210	40	83	29.70	15	780210	62	53	54	29.90
76018	NH45D7G158526	022	254	225	6	2	2	1	1	2	1	2	1	1	1	2	A	017740	780214	47	72	29.95	08	780214	67	59	62	29.95
76019	4J57C7Z108444	041	464	231	6	2	2	1	1	2	1	2	2	1	1	2	K	017691	780215	43	89	29.95	10	780215	60	54	68	30.26
76020	2D35Y7P200131	045	498	301	8	2	2	1	1	2	1	2	2	1	1	2	M	014998	780221	48	87	30.30	30	780221	65	59	70	30.35
76021	7W37F517586	033	392	302	8	2	2	1	1	2	1	2	2	1	1	2	M	023698	780228	48	80	29.90	20	780228	60	50	48	29.76
76022	1C37U7K475228	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	B	009746	780228	48	70	29.70	15	780228	62	57	74	29.76
76023	1D37J7Z417278	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	K	014291	780302	46	55	29.60	15	780302	61	59	89	29.58
76024	1D29U7Z402235	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	K	016741	780303	40	80	29.70	10	780303	68	60	59	29.46
76025	1D29U7Z406387	043	482	305	8	2	2	1	1	2	2	2	2	1	1	2	L	019646	780304	43	82	29.40	05	780304	62	57	74	30.03
76026	4X37K7M462694	041	418	403	8	2	3	1	1	2	1	2	2	1	1	2	A	019951	780304	42	75	29.40	05	780304	69	64	76	30.26
76027	2K57Y7P228683	045	457	301	8	2	2	1	1	2	1	2	2	1	1	2	A	020154	780304	46	68	29.45	10	780304	64	59	74	30.15
76028	NP41D7G151911	022	254	225	6	2	2	1	1	2	1	2	1	1	1	2	A	010358	780306	50	82	30.00	15	780306	64	60	79	30.26
76029	4J57C7Z107397	041	464	231	6	2	2	1	1	2	1	2	2	1	1	2	K	022136	780306	55	70	30.95	10	780306	67	61	71	30.10
76030	1D37U7Z410990	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	K	013348	780306	56	66	29.80	20	780306	63	61	89	30.26
76031	8472048057	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	A	018177	780306	56	68	29.80	05	780306	63	61	89	30.26
76032	HLB210927114	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	011413	780218	52	99	30.30	10	780218	62	57	74	30.35
76033	1L47U7C111115	043	478	305	8	2	2	1	1	2	1	2	2	1	1	2	L	010070	780310	51	65	29.90	10	780310	65	61	75	30.24
76034	1H57U7Z401017	043	483	305	8	2	2	1	1	2	1	2	2	1	1	2	K	012801	780320	61	60	29.90	10	780320	70	60	55	29.98
76035	1N69L7C100387	043	472	350	8	2	3	1	1	2	1	2	2	1	1	2	L	013351	780321	68	59	29.65	10	780321	63	57	69	29.88
76036	4Z37K7M433502	041	465	403	8	2	3	1	1	2	1	2	2	1	1	2	B	014701	780330	52	91	29.95	30	780330	62	55	64	30.01
76037	1L47L7J117147	043	478	350	8	2	3	1	1	2	1	2	2	1	1	2	L	016825	780330	52	88	29.95	00	780330	66	59	71	30.02
76038	1Y27D7L104323	043	480	250	6	2	1	1	1	2	2	2	2	1	1	2	J	014292	780403	52	80	29.70	15	780403	73	63	57	29.73
76039	3J57R7M232795	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	020337	780418	60	59	29.85	05	780418	64	57	65	30.04
76040	3J57R7M310811	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	J	012840	780727	68	59	30.10	20	780727	77	69	67	30.05
76041	1773519574	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	J	010653	780814	71	50	29.95	20	780814	78	64	46	29.94
76042	1X27D7L153398	043	486	250	6	2	1	1	1	2	1	2	2	1	1	2	J	005188	780928	68	55	30.20	10	780928	76	64	51	30.20
76043	1N69L7C180562	043	472	350	8	2	3	1	1	2	1	2	2	1	1	2	J	015942	781004	69	51	30.05	00	781004	73	60	46	30.04
76044	3G37C7M424092	044	444	231	6	2	2	1	1	2	1	2	2	1	1	2	G	011061	781005	78	35	30.00	06	781005	84	62	26	30.00
76045	3G37C7M414117	044	444	231	6	2	2	1	1	2	1	2	2	1	1	2	F	011490	781006	74	31	29.95	02	781006	82	63	33	30.00
76046	1773062574	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	M	025566	781030	52	67	30.35	30	781030	68	56	46	30.36
76047	7K92F121338	031	347	302	8	2	2	1	1	2	2	2	2	1	1	2	G	007194	781226	37	65	30.05	35	781226	74	57	33	29.99
76048	3J57C7M337856	044	494	231	6	2	2	1	1	2	1	2	2	1	1	2	J	011128	790118	38	53	30.00	15	790118	72	53	24	30.20

APPENDIX A - LISTING OF VEHICLES

1972 - 74 EUGENE

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                                                                                         ------DEQ DATA------      -----HTS DATA------
EPA NO VEH IDENT NO  MAKE MODL  CID C T F EI CA CE AC EM AS CC ES TR TAG  ODOM   DATF    F RH BARO  QT  DATE   DB WB RH BARO

27001  A2A187H286365  010  111  304 8 2 2  2  1  2  1  1  2  2  2  2  F  072626 780501 62 69 30.10 20 780501 74 59 39 30.16
27002  A2A057A179553  010  108  258 6 2 1  2  1  2  2  1  2  2  2  2  B  044256 771005 66 55 29.90 10 771005 74 70 82 29.92
27003  LH23C2R141987  022  227  225 6 2 1  2  1  2  2  1  2  2  2  2  A  070977 771103 48 74 29.70 08 771103 69 66 85 29.85
27004  WH23G2G156467  022  225  318 8 2 2  2  1  2  1  1  2  2  2  2  B  053948 771130 46 92 30.30 00 771130 71 67 81 30.08
27005  VL29G2B297361  023  285  318 8 2 2  2  1  2  2  1  2  2  2  2  B  062387 771219 42 95 30.25 10 771219 76 74 91 30.27

27006  VH23C2B267377  023  285  225 6 2 1  2  1  2  2  1  2  2  2  2  A  030585 771221 42 60 29.70 10 771221 68 67 95 30.04
27007  PH29K2D303715  023  277  360 8 2 2  1  1  2  1  1  2  2  2  2  B  070952 780119 48 92 29.80 00 780119 62 57 74 30.06
27008  1122324266     590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  A  040769 780124 40 95 30.40 15 780124 71 60 52 30.26
27009  2R11X124431    031  349  122 4 1 2  2  1  2  2  1  2  2  2  2  A  054833 780123 40 98 30.35 00 780123 69 58 51 30.40
27010  2X12X311894    031  349  122 4 1 2  2  1  2  1  1  2  2  2  2  A  058924 780125 38 95 30.15 25 780125 65 55 52 30.18

27011  2R11X145323    031  349  122 4 1 2  2  1  2  2  1  2  2  2  2  A  043538 780125 38 95 30.15 25 780125 71 61 56 30.20
27012  2R11X138595    031  349  122 4 1 2  2  1  2  2  1  2  2  2  2  A  083542 780201 50 89 29.70 05 780201 62 58 84 29.59
27013  2H31F164625    031  343  302 8 2 2  2  1  2  2  1  2  2  2  2  B  089897 780214 50 76 29.90 25 780214 62 56 73 29.91
27014  2F92H546407    033  336  351 8 2 2  1  1  2  2  1  2  2  2  2  G  042443 780215 48 75 30.15 20 780215 68 60 62 30.14
27015  1122270278     590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  A  041940 780216 47 77 30.01 10 780216 63 57 69 30.21

27016  2H30H169030    031  343  351 8 2 2  2  1  2  1  1  2  2  2  2  A  067504 780222 50 84 30.15 05 780222 69 62 67 30.12
27017  2P70H166137    031  313  351 8 2 2  2  1  2  2  1  2  2  2  2  A  095661 780223 53 84 29.29 15 780223 63 59 79 30.03
27018  2J74S127292    031  313  400 8 2 2  2  1  2  1  1  2  2  2  2  A  084831 780224 50 89 29.90 10 780224 71 65 72 29.92
27019  2Z48S518233    033  395  400 8 2 2  2  1  2  2  1  2  2  2  2  A  025202 780227 48 99 30.00 00 780227 60 55 73 29.86
27020  2K31F526723    033  334  302 8 2 2  2  1  2  2  1  2  2  2  2  B  057798 780227 48 91 29.75 25 780227 61 57 78 29.86

27021  1V77B20276122  043  488  140 4 1 2  2  1  2  2  2  1  2  2  2  A  056621 780228 46 77 29.65 25 780228 58 53 72 29.77
27022  1D69H2L532485  043  482  350 8 2 2  2  1  2  1  2  1  2  2  2  A  080626 780301 48 53 29.60 10 780301 60 55 73 29.67
27023  1D37H2L569745  043  482  350 8 2 2  2  1  2  1  2  1  2  2  2  A  063017 780303 40 79 29.65 00 780303 73 64 61 29.52
27024  1D37H2K546427  043  482  350 8 2 2  2  1  2  2  2  1  2  2  2  A  055193 780306 56 69 29.95 05 780306 66 64 90 30.26
27025  1V77B2J167314  043  488  140 4 1 2  2  1  2  1  2  1  2  2  2  A  050526 780309 52 62 30.10 15 780309 68 63 76 30.24

27026  TE27041885     570  570  097 4 1 2  2  1  2  2  1  2  2  2  2  A  076686 780313 48 70 30.10 00 780313 57 53 77 30.21
27027  1X69D2L117517  043  486  250 6 2 1  2  1  2  2  2  1  2  2  2  A  066366 780310 52 67 29.80 15 780310 65 60 75 30.24
27028  1453343108332  600  604  121 4 1 2  2  1  2  2  1  2  2  2  2  A  070749 780314 50 64 30.30 07 780314 62 55 64 30.34
27029  1N69R2J296313  043  472  400 8 2 2  2  1  2  1  1  2  2  2  2  A  096645 780316 63 47 30.10 10 780316 73 62 53 30.07
27030  PL510944845    380  388  097 4 1 2  2  2  1  2  1  2  2  2  2  A  063366 780316 62 57 30.05 10 780316 74 62 50 30.06

27031  4P39T2C111537  041  417  455 8 2 3  2  1  2  1  1  1  2  2  2  E  049474 780323 54 91 29.70 05 780323.60 55 73 29.83
27032  1M45R2C200120  043  478  400 8 2 2  2  1  2  1  1  2  2  2  2  A  049519 780320 61 63 30.00 20 780320 81 64 36 30.01
27033  6D47R2J134261  042  425  472 8 2 3  2  1  2  1  2  1  2  2  2  A  068708 780321 65 50 30.00 10 780321 79 65 46 30.00
27034  PL510948388    380  388  097 4 1 2  2  2  1  2  1  2  2  2  2  A  080910 780320 60 63 30.00 15 780320 76 62 44 30.04
27035  3R35T2N485271  044  443  455 8 2 3  2  1  2  1  1  2  2  2  2  B  076806 780320 65 48 29.90 15 780320 76 63 45 29.98

27036  3J57K2Z113051  044  494  350 8 2 3  2  1  2  1  1  2  2  2  2  B  084207 780323 54 90 29.70 20 780323 62 56 69 29.82
27037  1X27F2W176609  043  486  307 8 2 2  2  1  2  1  1  2  2  2  2  B  050641 780330 53 79 29.94 15 780330 64 57 65 30.03
27038  PL510945065    380  388  097 4 1 2  2  2  1  2  1  2  2  2  2  A  056760 780327 62 77 29.95 15 780327 68 62 71 30.06
27039  1M35H2C172502  043  478  350 8 2 2  2  1  2  1  2  1  2  2  2  A  078090 780329 55 88 29.79 15 780329 73 66 69 29.88
27040  LB110291335    380  389  072 4 1 2  2  2  1  2  1  2  2  2  2  C  054974 780410 66 53 29.85 00 780410 79 63 40 29.97

27041  1M47H2C111471  043  478  350 8 2 2  2  1  2  1  2  1  2  2  2  G  112358 780504 52 79 30.05 15 780504 68 55 42 30.16
37001  A3C465A205253  010  107  258 6 2 1  2  1  2  2  2  1  2  1  2  A  049953 771004 65 56 30.00 02 771004 69 66 85 29.92
37002  VH23C3B247809  023  285  225 6 2 1  1  1  2  2  2  2  2  1  2  A  113031 771107 44 99 30.30 00 771107 70 67 86 30.42
37003  WP46G3A146181  022  225  318 8 2 2  1  1  2  2  2  2  2  1  2  B  075623 771201 54 96 29.90 30 771201 65 64 95 29.83
37004  LH41C3R193212  022  227  225 6 2 1  1  1  2  1  2  2  2  1  2  A  063800 771205 42 81 29.59 18 771205 64 63 95 30.04

37005  1332227416     590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  E  064104 771207 38 99 29.90 10 771207 70 68 90 29.94
37006  1L47H3C181756  043  478  350 8 2 2  2  1  2  2  2  1  2  1  2  C  041388 771227 36 68 29.90 25 771227 73 70 86 30.00
37007  VL29G3B541874  023  285  318 8 2 2  1  1  2  2  2  2  2  1  2  C  054244 771229 38 99 29.80 00 771229 61 59 89 30.05
37008  3H31H100530    031  343  351 8 2 2  2  1  2  1  2  2  2  1  2  L  032843 780106 44 99 30.00 08 780106 63 61 89 29.72
37009  PL610819326    380  385  108 4 1 2  2  1  2  2  1  2  2  2  2  E  071290 780113 44 85 30.00 15 780113 69 62 67 29.88
```

APPENDIX A - LISTING OF VEHICLES

1972 - 74 EUGENE

																			------DEQ DATA------					-----HTS DATA------				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
37010	DM43K30173095	022	229	360	8	2	2	1	1	2	1	2	2	2	1	2	C	079775	780123	42	99	30.45	10	780123	76	62	44	30.47
37011	1332413756	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	B	049385	780125	40	98	30.15	20	780125	60	55	73	30.09
37012	3X12X124505	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	B	068861	780125	39	99	30.20	20	780125	75	62	47	30.24
37013	3R11X114074	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	037371	780201	52	82	29.60	10	780201	64	58	70	29.70
37014	3R12X143392	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	048952	780131	44	97	29.90	05	780131	69	61	63	29.94
37015	3K31L523814	033	334	250	6	2	1	2	1	2	1	2	2	2	1	2	A	045034	780208	49	89	29.30	00	780208	63	55	60	29.72
37016	3A31H187039	031	343	351	8	2	2	1	1	2	1	2	2	2	1	2	B	068589	780217	50	78	30.15	00	780217	57	52	71	30.20
37017	3K31F522050	033	334	302	8	2	2	2	1	2	1	2	2	2	1	2	A	018476	780216	46	75	30.00	10	780216	70	60	55	30.09
37018	3J62S17457	031	345	400	8	2	2	2	1	2	1	2	2	2	1	2	B	044648	780224	50	85	29.90	15	780224	65	59	70	29.91
37019	1D29H32481308	043	482	350	8	2	2	2	1	2	2	2	1	2	1	2	A	028730	780228	50	70	29.70	20	780228	67	61	71	29.78
37020	1V77B3U231026	043	488	140	4	1	2	2	1	2	2	2	2	2	1	2	A	035942	780306	55	70	29.95	10	780306	63	58	74	30.01
37021	1V15B3U242863	043	488	140	4	1	2	2	1	2	2	2	2	2	1	2	A	053986	780307	53	99	29.85	05	780307	62	59	84	29.96
37022	3X12X176565	031	349	122	4	2	2	2	1	2	2	1	2	2	2	2	A	071850	780307	52	99	29.85	15	780307	65	61	80	30.26
37023	1Y17H3L143421	043	480	350	8	2	2	2	1	2	2	1	1	2	1	2	L	046077	780317	66	60	29.95	15	780317	75	64	54	30.20
37024	3P66S129055	031	345	400	8	2	2	2	1	2	1	2	2	2	1	2	B	046735	780313	50	70	30.10	10	780313	64	57	65	30.18
37025	3J57K3M236712	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	034354	780315	54	55	30.20	00	780315	67	54	41	30.29
37026	1L47R3C145422	043	478	400	8	2	2	2	1	2	1	1	2	2	1	2	B	036637	780316	60	55	30.10	15	780316	75	61	44	30.14
37027	1L69H3C128560	043	478	350	8	2	2	2	1	2	2	2	1	2	1	2	C	039095	780317	66	60	29.95	10	780317	77	65	52	30.20
37028	6D49R3J198604	042	425	472	8	2	3	2	1	2	1	2	1	2	1	2	B	082428	780321	60	70	29.55	15	780321	75	63	51	29.78
37029	3J57K3M168300	044	494	350	8	2	3	2	1	2	1	1	2	2	1	2	A	038735	780322	61	66	29.20	10	780322	67	60	66	29.81
37030	4Y87U3H583125	041	465	455	8	2	3	2	1	2	1	2	1	2	1	2	A	076993	780323	54	91	29.65	15	780323	63	57	69	29.81
37031	1N47R3C156792	043	472	400	8	2	2	2	1	2	1	1	1	2	1	2	A	027146	780327	62	65	29.95	15	780327	74	65	61	30.06
37032	3R45T3X109081	044	443	455	8	2	3	2	1	2	1	2	2	2	1	2	A	090091	780328	60	74	29.85	10	780328	75	65	58	29.92
37033	1446344366001	600	604	121	4	1	4	2	1	2	2	2	2	2	2	2	B	074963	780317	60	50	29.30	10	780317	71	62	57	29.56
37034	PH43M3D340735	023	277	400	8	2	2	1	1	2	1	1	2	2	1	2	A	048500	780403	60	47	29.60	10	780403	71	63	64	29.66
37035	3J54H154262	031	341	351	8	2	2	2	1	2	2	2	2	2	1	2	C	061359	780406	54	61	29.70	05	780406	69	64	72	29.82
37036	4D37H32108514	041	417	350	8	2	2	2	1	2	1	2	1	2	1	2	L	039010	780412	57	47	30.00	05	780412	68	54	38	30.04
37037	4D37H32130292	041	417	350	8	2	2	2	1	2	1	2	1	2	1	2	D	057016	780412	57	47	30.00	00	780412	72	50	15	30.06
37038	1V15B3U285567	043	488	140	4	1	2	2	1	2	2	2	2	2	1	2	C	067541	780807	84	41	30.00	01	780807	92	76	48	30.01
37039	1332333910	590	590	097	4	1	1	2	1	2	2	1	2	2	2	2	A	057722	780912	64	55	30.10	10	780912	78	64	46	30.06
37040	LL29C3B251911	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	A	041813	781009	68	61	30.10	15	781009	76	64	51	30.09
47001	A4C037A234113	010	108	258	6	2	1	2	1	2	2	2	1	2	1	2	A	022890	771101	58	92	29.55	03	771101	70	68	90	29.78
47002	VH23C4G113097	023	285	225	6	2	1	1	1	2	1	2	2	2	1	2	A	050499	771114	53	99	30.15	00	771114	71	59	48	30.18
47003	LH41CR4159162	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	A	045703	771109	52	78	30.02	01	771109	75	73	91	30.12
47004	LL23C4G220545	022	227	225	6	2	1	1	1	2	2	2	2	2	1	2	A	018281	771117	44	90	30.25	06	771117	80	63	38	30.38
47005	RP23G4G186312	023	275	318	8	2	2	1	1	2	1	2	2	2	1	2	C	034875	771117	43	89	30.15	18	771117	70	57	48	30.22
47006	LH23G4G150638	022	227	318	8	2	2	1	1	2	2	2	2	2	1	2	C	023745	771219	44	86	30.25	10	771219	69	67	90	30.30
47007	TE21U672881	570	570	097	4	1	2	2	1	2	2	1	2	2	2	2	B	072830	771230	42	99	30.00	10	771230	75	72	86	29.80
47008	1587K4V160235	043	439	350	8	2	2	2	1	2	2	1	1	2	1	2	E	027599	780110	46	92	29.80	35	780110	63	60	84	29.80
47009	4R12Y134736	031	349	140	4	2	2	2	1	2	2	2	1	2	1	2	A	036810	780201	38	93	29.70	02	780201	65	59	70	29.70
47010	4R05Z224438	031	348	170	6	2	2	2	1	2	2	2	1	2	1	2	A	030202	780203	56	79	30.00	05	780203	68	62	71	30.10
47011	4X11Y197550	031	349	140	4	2	2	2	1	2	2	2	1	2	1	2	A	049902	780204	55	80	30.00	10	780204	63	66	85	30.09
47012	4F03Y451700	031	348	140	4	2	2	2	1	2	1	2	1	2	1	2	A	058368	780214	45	96	29.80	01	780214	68	60	62	30.26
47013	4K92L163781	031	347	250	6	2	1	2	1	2	1	2	1	2	1	2	A	058999	780209	46	75	29.76	15	780209	70	59	51	29.80
47014	4F02Y164135	031	348	140	4	2	2	2	1	2	2	2	1	2	1	2	B	062692	780227	50	78	29.80	10	780227	60	56	78	29.86
47015	4J62S114674	031	345	400	8	2	2	1	1	2	1	2	1	2	1	2	C	033018	780228	48	68	29.70	15	780228	69	62	67	29.76
47016	4A93H453675	033	336	351	8	2	2	2	1	2	1	2	2	2	1	2	B	046836	780308	54	82	29.95	10	780308	65	60	75	30.26
47017	4D37H42101031	041	417	350	8	2	2	2	1	2	1	2	1	2	1	2	C	029439	780307	53	99	29.85	15	780307	63	59	79	29.97
47018	1D37H42410500	043	482	350	8	2	2	2	1	2	1	2	1	2	1	2	A	050010	780320	60	70	29.55	15	780320	74	63	54	29.80
47019	1456343223454	600	604	121	4	1	5	2	1	2	1	2	2	2	2	2	A	057344	780313	51	69	30.05	10	780313	62	57	74	30.16

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                                    APPENDIX A - LISTING OF VEHICLES

                                          1972 - 74  EUGENE

                                                                                        ------DEQ DATA------   -----HIS DATA------
EPA NO VEH IDENT NO    MAKE MODL  CID C T F EI CA CE AC EM AS CC ES TR TAG  ODOM   DATE    F RH BARO   QT  DATE   DB WB RH BARO

47020  1142094821       590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  A  061932 780315 51 62 30.25 15 780315 71 56 53 30.30
47021  1L29D4Z423442    043  482  250 6 2 1  2  1  2  2  2  1  2  1  2  B  029249 780323 56 77 29.70 15 780323 60 55 73 29.83
47022  1342309907       590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  A  068633 780321 65 63 29.70 04 780321 74 63 54 29.76
47023  1342015427       590  590  097 4 1 1  2  1  2  2  1  2  2  2  2  A  022334 780324 54 96 30.00 05 780324 60 57 83 30.15
47024  3X39T4M192994    044  491  455 8 2 3  2  1  2  1  2  2  2  1  2  C  022617 780324 53 93 30.00 05 780324 63 59 79 30.14

47025  4X12X147075      031  349  122 4 2 2  2  1  2  2  1  1  2  1  2  A  058587 780328 60 75 29.85 15 780328 75 66 62 29.92
47026  6D47R4J168447    042  425  472 8 2 3  2  1  2  1  2  1  2  1  2  C  060441 780328 60 73 29.85 20 780328 72 64 65 29.91
47027  1L47R4C136475    043  478  400 8 2 2  2  1  2  1  1  1  2  1  2  A  045686 780329 55 88 29.79 20 780329 71 64 68 29.88
47028  HL B210014935    380  380  078 4 2 2  2  1  2  2  1  2  2  1  2  A  052046 780331 62 55 29.50 15 780331 72 62 57 29.56
47029  1V77B42147675    043  488  140 4 2 2  2  1  2  2  2  2  2  1  2  B  044795 780405 51 73 29.75 10 780405 67 61 71 29.86

47030  5J35K4R191837    044  494  350 8 2 3  2  1  2  2  1  2  2  1  2  F  062533 780409 68 53 29.85 05 780409 78 62 39 29.96
47031  3J29K4M112482    044  444  350 8 2 3  2  1  2  1  1  2  2  1  2  C  044291 780413 52 64 29.70 05 780413 65 55 52 29.83
47032  4F04Y100458      031  348  140 4 2 2  2  1  2  1  2  1  2  1  2  C  041350 780619 70 51 30.10 20 780619 84 68 43 30.06
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APPENDIX A - LISTING OF VEHICLES

1975 - 77 EUGENE

																			DEQ DATA					HTS DATA				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	LC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
58002	SS22K5R189100	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	C	025375	771004	57	60	29.95	19	771004	73	69	78	29.92
58003	VH29C5B186548	023	285	225	6	2	1	1	1	2	2	1	2	1	1	2	A	039717	771018	56	88	29.95	39	771018	69	59	55	30.06
58004	5X12Y137640	031	349	140	4	2	2	1	1	2	2	2	1	2	1	2	A	020444	771020	58	78	29.95	40	771020	71	64	68	30.18
58005	LH41C5B259322	022	227	225	6	2	1	1	1	2	2	1	2	1	1	2	A	015044	771026	47	99	29.95	10	771026	77	69	63	29.80
58006	A5A087E135393	010	108	232	6	2	1	1	1	2	2	2	1	2	1	2	B	020382	771102	51	92	30.15	00	771102	72	70	91	30.20
58007	5K30L526983	033	334	250	6	2	1	1	1	2	2	2	1	1	1	2	C	027002	771115	55	69	30.10	07	771115	70	56	44	30.20
58008	5K91L141715	031	347	250	6	2	1	1	1	2	2	2	1	1	1	2	A	013912	771116	44	99	30.25	02	771116	81	61	35	30.32
58009	VH41C5R175953	023	285	225	6	2	1	1	1	2	2	1	2	1	1	2	B	018047	771205	42	82	30.00	20	771205	76	73	87	30.10
58010	5F04Y119289	031	348	140	4	1	2	1	1	2	2	2	1	2	1	2	A	029079	771206	50	89	29.51	00	771206	76	72	86	30.11
58011	5W38F528188	033	392	302	8	2	2	1	1	2	2	2	1	1	1	2	A	025505	771207	38	90	30.00	15	771207	68	64	80	30.20
58012	5W34F506269	033	392	302	8	2	2	1	1	2	1	2	1	1	1	2	B	034930	771209	39	90	29.90	13	771209	63	62	95	30.04
58013	5T12Z127235	031	349	171	6	2	2	1	1	2	2	2	1	1	1	2	C	035398	771214	52	99	29.40	20	771214	65	64	95	29.54
58014	5H30H139977	031	343	351	8	2	2	1	1	2	1	2	1	1	1	2	A	030666	771215	44	95	29.30	09	771215	70	69	95	29.74
58015	8552040808	640	640	097	4	1	5	2	1	2	2	2	2	2	1	2	B	032208	771219	44	86	30.25	00	771219	73	71	91	30.17
58016	HLB210520193	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	034563	780117	48	99	29.70	20	780117	65	56	56	29.81
58017	SGC1008883	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	B	034733	771221	42	65	29.70	00	771221	74	71	86	29.80
58018	SBA3323345	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	B	035321	780104	34	98	29.50	00	780104	69	67	90	29.34
58019	1152036745	590	590	097	4	1	5	2	1	2	2	2	1	2	2	2	A	012437	780106	44	99	30.00	25	780106	65	62	85	30.05
58020	TE03100024310	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	031458	780116	46	98	29.26	01	780116	66	68	95	29.34
58021	5J63H140251	031	345	351	8	2	2	1	1	2	1	2	1	1	1	2	C	038180	780119	48	83	29.75	20	780119	70	59	51	29.81
58022	HLB210549347	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	C	020724	780120	48	97	30.00	55	780120	69	61	63	30.06
58023	1V15B5C119003	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	A	047292	780202	49	98	29.60	05	780202	62	57	74	29.79
58024	5H30H175251	031	343	351	8	2	2	1	1	2	1	2	1	1	1	2	B	038694	780131	42	99	29.96	05	780131	55	52	82	29.94
58025	1X69D5L112046	043	486	250	6	2	1	1	1	2	2	2	2	1	1	2	A	023368	780131	44	97	29.90	10	780131	72	63	61	29.94
58026	1R07B52134743	043	484	140	4	1	2	1	1	2	2	2	2	1	1	2	B	026717	780202	50	97	29.80	05	780202	62	58	79	29.78
58027	1L69H5J198359	043	478	350	8	2	2	1	1	2	1	2	2	1	1	2	C	066747	780207	53	92	29.20	15	780207	71	62	60	29.38
58028	1S87H5V533015	043	439	350	8	2	2	1	1	2	2	2	2	1	1	2	C	040728	780214	48	87	29.90	20	780214	64	56	60	29.92
58029	3L69K5X106713	044	446	350	8	2	3	1	1	2	1	2	2	1	1	2	A	094619	780223	54	85	29.89	10	780223	61	57	78	30.03
58030	4X37T5H443359	041	418	455	8	2	3	1	1	2	1	2	2	1	1	2	A	022164	780222	50	82	30.15	10	780222	64	58	70	30.18
58031	1Q87H5V547920	043	439	350	8	2	2	1	1	2	1	2	2	1	1	2	B	024208	780224	52	82	29.90	05	780224	63	58	74	29.92
58032	RT105007094	570	573	133	4	1	2	2	1	2	2	2	2	1	1	2	E	021500	780303	40	78	29.65	10	780303	58	55	83	29.73
58033	TE37510288	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	A	110797	780303	40	80	29.65	10	780303	69	61	63	29.50
58034	6D495SJ108099	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	M	042516	780516	60	70	30.20	20	780516	73	59	42	30.28
58035	RH41G5A150462	023	275	318	8	2	2	1	1	2	2	1	2	1	1	2	C	040988	781003	70	51	30.10	02	781003	83	65	42	30.09
58036	4R35T5X106221	041	419	455	8	2	3	1	1	2	1	2	2	1	1	2	B	043150	781116	54	74	30.15	20	781116	69	60	59	30.12
58037	SBC3325639	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	E	030318	781128	50	80	30.10	10	781128	64	56	60	30.04
58119	1V77B5C108506	043	488	140	4	1	2	1	1	2	2	2	2	1	1	2	B	043210	780919	58	64	30.25	15	780919	76	62	44	30.34
68001	HP41G6F238417	023	287	318	8	2	2	1	1	2	1	2	2	1	1	2	C	021327	770924	59	99	29.75	05	770924	82	74	69	29.92
68002	A6A087A194470	010	108	258	6	2	1	2	1	2	2	2	1	2	1	2	C	017679	771007	60	99	30.05	00	771007	70	68	90	30.22
68003	VL41C6F142415	023	285	225	6	2	1	1	1	2	2	2	2	1	1	2	A	025736	771012	63	60	30.00	00	771012	63	55	60	30.23
68004	SS22K6R191942	021	210	360	8	2	2	1	1	2	1	1	2	1	1	2	B	021128	771013	64	72	30.10	20	771013	78	60	33	30.20
68005	A6A057A255890	010	108	258	6	2	1	1	1	2	2	2	1	2	1	2	C	020909	771019	60	89	30.00	20	771019	74	61	47	30.04
68006	NH45C6B108155	022	254	225	6	2	1	1	1	2	1	2	2	1	1	2	A	027829	771025	61	86	29.95	15	771025	72	59	45	30.16
68007	6R04Z149069	031	348	171	6	2	2	1	1	2	2	2	1	1	1	2	D	009919	771109	47	79	30.05	02	771109	69	67	90	30.14
68008	6R117147182	031	349	140	4	2	2	1	1	2	2	2	1	1	1	2	H	029453	771114	47	99	30.03	10	771114	68	57	50	30.19
68009	6K92L133353	031	347	250	6	2	1	1	1	2	2	2	1	1	1	2	A	024934	771121	35	48	29.65	02	771121	74	66	65	29.73
68010	6W82L183358	031	342	250	6	2	1	1	1	2	2	2	1	1	1	2	A	029720	771128	50	93	30.17	00	771128	70	67	86	30.20
68011	6T22Y511654	033	331	140	4	1	2	1	1	2	2	2	1	1	1	2	A	027550	771128	50	97	30.10	00	771128	69	67	90	30.46
68012	6W81F191235	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	A	031417	771206	50	88	29.50	00	771206	73	70	86	30.10
68013	8562038666	640	640	097	4	1	5	2	1	2	1	2	2	2	1	2	A	032490	771212	50	83	29.90	25	771212	65	64	95	29.70

APPENDIX A - LISTING OF VEHICLES

1975 - 77 EUGENE

																			DEQ DATA					HTS DATA				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATE	DB	WB	RH	BARO
68014	6H08H517273	033	394	351	8	2	2	1	1	2	1	2	1	1	1	2	A	019410	771214	44	95	29.50	10	771214	67	64	85	29.80
68015	6W81F134755	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	B	019371	771220	40	60	30.05	02	771220	76	73	87	29.85
68016	SGC2002634	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	A	017413	771227	36	68	29.95	15	771227	65	61	85	29.94
68017	VC24545E10670	600	601	130	4	1	5	1	1	2	2	2	1	2	2	2	C	021373	771228	38	78	29.75	00	771228	72	70	91	29.88
68018	HLB210782608	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	011176	771230	42	99	30.00	25	771230	58	57	94	29.58
68019	HLB210909281	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	008113	780104	38	90	29.48	10	780104	70	69	95	29.30
68020	6S23K67500533	022	224	058	4	1	2	2	1	2	2	2	1	2	1	2	C	006334	780111	48	85	29.80	25	780111	62	60	89	30.18
68021	SBA4010521	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	B	020215	780111	48	84	29.80	15	780111	62	59	84	30.15
68022	6J76S122650	031	313	400	8	2	2	1	1	2	1	2	1	1	1	2	A	021522	780111	48	95	29.70	35	780111	63	61	89	30.20
68023	TE38033757	570	571	097	4	1	2	2	1	2	1	2	1	2	2	2	A	037474	780117	42	80	29.80	25	780117	65	58	66	29.91
68024	TE31171765	570	570	097	4	1	2	1	1	2	2	2	1	2	2	2	A	018286	780120	48	97	30.00	50	780120	63	57	69	30.06
68025	1V15B6J153232	043	488	140	4	2	2	1	1	2	2	2	2	1	1	2	A	018660	780130	48	65	29.85	10	780130	68	61	67	29.92
68026	1C29D6R444512	043	482	250	6	2	1	1	1	2	2	2	2	1	1	2	B	033884	780202	49	98	29.60	05	780202	62	58	79	29.81
68027	1S87Q6L504503	043	439	305	8	2	2	1	1	2	1	2	2	1	1	2	E	023273	780207	53	95	29.20	15	780207	65	59	70	29.42
68028	TE37534688	570	570	097	4	1	2	2	1	2	2	2	1	2	2	2	C	013594	780207	53	92	29.20	05	780207	62	54	59	29.50
68029	6J53H121799	031	315	351	8	2	2	1	1	2	1	2	1	1	1	2	A	023143	780208	49	80	29.25	00	780208	57	51	65	29.70
68030	1763102947	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	A	030728	780209	48	75	29.70	15	780209	55	50	70	29.76
68031	1W87D6N519073	043	439	250	6	2	1	1	1	2	2	2	2	1	1	2	A	017639	780209	48	65	29.70	15	780209	52	47	63	29.78
68032	1763399748	590	591	097	4	1	1	2	1	2	2	2	1	1	1	2	K	027057	780210	40	85	29.70	20	780210	58	51	61	29.74
68033	1D29W62411068	043	482	305	8	2	2	1	1	2	1	2	2	1	1	2	K	030402	780210	42	88	29.70	25	780210	56	50	65	29.73
68034	1B08E6Y172153	043	489	085	4	1	1	1	1	2	2	2	2	1	1	2	A	031596	780213	51	55	29.76	10	780213	62	54	59	29.98
68035	4B69C6L111991	041	467	231	6	2	2	1	1	2	2	2	2	1	1	2	B	031812	780216	46	85	30.00	00	780216	62	56	69	30.22
68036	HLB210156067	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	A	035802	780217	50	77	30.15	00	780217	61	55	68	30.20
68037	3J57R6M279445	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	B	024945	780217	48	92	30.15	00	780217	64	57	65	30.20
68038	4Z87Y6H483089	041	465	455	8	2	3	1	1	2	1	2	2	1	1	2	V	035504	780223	54	83	29.95	15	780223	63	58	74	30.04
68039	RT119020430	570	573	133	4	1	2	2	1	2	2	2	2	1	1	2	C	028583	780309	52	62	30.10	15	780309	71	65	72	30.15
68040	1S87L6L502421	043	439	350	8	2	2	1	1	2	1	2	2	1	1	2	D	026578	780309	51	64	30.10	15	780309	67	62	75	30.14
68041	6F02Y151681	031	348	140	4	1	2	1	1	2	2	2	1	1	1	2	A	034574	780323	50	99	30.00	00	780323	61	57	78	30.12
68042	1H57V6Z408205	043	483	350	8	2	2	1	1	2	2	2	2	1	1	2	B	026160	780511	57	82	29.75	20	780511	68	56	46	29.85
68043	6D47S6Q298333	042	425	500	8	2	3	1	1	2	1	2	2	1	1	2	F	018718	780519	76	49	30.05	10	780519	84	68	43	30.01
68044	SGE2054439	260	262	091	4	1	4	2	1	2	2	2	2	2	2	2	H	031439	781005	74	29	30.00	05	781005	85	63	26	29.98
68045	6R04Z149390	031	348	171	6	2	2	1	1	2	1	2	1	1	1	2	G	023252	781107	58	63	30.15	02	781107	76	61	41	30.14
68046	6W81L125153	031	342	250	6	2	1	1	1	2	1	2	1	1	1	2	C	019153	781222	45	82	30.12	00	781222	68	58	54	30.08
68047	1D37V6Z423399	043	482	350	8	2	2	1	1	2	1	2	2	1	1	2	C	021875	790103	29	38	30.15	25	790103	72	53	24	30.16
68058	LL41C6G213723	156	227	225	6	2	1	1	1	2	1	2	2	1	1	2	G	022655	780929	70	53	30.05	10	780929	82	68	48	30.03
68082	4B69C6L110689	041	467	231	6	2	2	1	1	2	1	2	2	1	1	2	A	027375	780901	72	58	29.80	20	780901	84	70	49	29.81
68083	1W87D6L511261	043	439	250	6	2	1	1	1	2	2	2	2	1	1	2	B	028722	780906	70	52	29.80	15	780906	76	62	44	29.84
68084	A6A667A212660	040	112	258	6	2	1	1	1	2	1	2	1	2	1	2	A	026796	780911	62	63	30.10	05	780911	75	63	51	30.12
68085	SBC4033238	260	261	076	4	1	2	2	1	2	2	2	1	2	2	2	B	017133	780913	60	78	30.00	15	780913	73	64	61	29.96
68086	6G21S200134	031	316	400	8	2	2	1	1	2	2	2	1	1	1	2	C	019725	780918	60	48	30.15	15	780918	73	59	42	30.18
78001	HP41G7F109782	023	287	318	8	2	2	1	1	2	1	2	1	1	1	2	J	010913	771028	55	94	29.60	00	771028	69	65	81	29.74
78002	NH45G7B280011	022	254	318	8	2	2	1	1	2	1	2	1	1	1	2	B	010578	771028	52	99	29.65	04	771028	73	69	86	29.74
78003	HH45D7G131908	023	287	225	6	2	2	1	1	2	1	2	1	1	1	2	A	012643	771104	52	97	29.60	00	771104	73	70	86	29.95
78004	NL45D7G141977	022	254	225	6	2	2	1	1	2	2	2	1	1	1	2	A	008958	771129	52	80	30.35	05	771129	67	65	90	30.44
78005	HLB210809627	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	M	010307	771229	38	98	29.75	10	771229	60	57	83	30.04
78006	4J57G7Z153458	041	464	231	6	2	2	1	1	2	2	2	2	1	1	2	D	006392	780106	46	90	30.00	35	780106	69	68	95	30.02
78007	3372170436	590	593	097	4	1	5	2	1	2	2	2	2	2	1	2	H	004177	780109	47	99	29.70	03	780109	61	59	89	29.80
78008	5372016353	590	594	097	4	1	1	2	1	2	2	2	1	1	1	2	B	007932	780113	44	88	30.00	15	780113	65	60	75	29.77
78009	7W84F159379	031	342	302	8	2	2	1	1	2	2	2	2	1	1	2	A	008956	780113	45	85	30.00	15	780113	65	61	80	29.96
78010	7W35F526317	033	392	302	8	2	2	1	1	2	1	2	2	1	1	2	B	008207	780119	48	84	29.75	15	780119	68	56	46	29.83

APPENDIX A - LISTING OF VEHICLES

1975 - 77 EUGENE

																			------DEQ DATA------					------ITS DATA------				
EPA NO	VEH IDENT NO	MAKE	MODL	CID	C	T	F	EI	CA	CE	AC	EM	AS	CC	ES	TR	TAG	ODOM	DATE	F	RH	BARO	QT	DATF	DB	WB	RH	BARO
78011	7A93S536056	033	399	400	8	2	2	1	1	2	1	2	2	1	1	2	B	015484	780123	42	98	30.40	00	780123	60	52	62	30.48
78012	RA290487063	570	572	133	4	1	2	2	1	2	2	2	1	2	1	2	K	012797	780126	42	99	30.30	30	780126	63	55	60	30.26
78013	7W82L160856	031	342	250	6	2	1	1	1	2	2	2	1	1	1	2	A	016705	780127	38	97	30.25	25	780127	63	55	60	30.27
78014	RA29071328	570	572	133	4	1	2	2	1	2	2	2	1	2	1	2	A	013570	780127	40	96	30.30	00	780127	64	55	56	30.02
78015	7W84F244320	031	342	302	8	2	2	1	1	2	1	2	1	1	1	2	F	007129	780210	40	89	30.70	15	780210	58	51	61	29.74
78016	7J875106578	031	372	400	8	2	2	1	1	2	1	2	2	1	1	2	L	015391	780213	50	57	29.80	15	780213	58	54	77	29.94
78017	1N47U7J103690	043	472	305	8	2	2	1	1	2	1	2	2	1	1	2	A	005606	780215	38	75	30.20	10	780215	58	54	77	30.24
78018	1D37U7Z436299	043	482	305	8	2	2	1	1	2	2	2	2	1	1	2	A	005354	780215	48	70	30.20	00	780215	57	53	77	30.24
78019	1N35L7L101046	043	472	350	8	2	3	1	1	2	1	2	2	1	1	2	K	026550	780222	50	78	30.10	25	780222	60	55	73	30.18
78020	1N47U7L104925	043	472	305	8	2	2	1	1	2	1	2	2	1	1	2	L	031620	780222	50	80	30.00	00	780222	63	58	74	30.14
78021	4X69K7H474591	041	418	403	8	2	3	1	1	2	1	2	2	1	1	2	B	017172	780228	48	70	29.80	20	780228	59	55	78	29.80
78022	2J57Y7P109071	045	457	301	8	2	2	1	1	2	2	2	2	1	1	2	J	016783	780301	50	50	29.50	00	780301	62	57	74	29.66
78023	3G37K7M241789	044	444	350	8	2	3	1	1	2	2	2	2	1	1	2	A	018903	780301	50	50	29.55	10	780301	61	55	68	29.68
78024	3J57K7M237211	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	007804	780301	50	50	29.50	20	780301	58	53	72	29.66
78025	1D37L7Z400998	043	482	350	8	2	3	1	1	2	1	2	2	1	1	2	J	011512	780302	48	45	29.60	10	780302	63	58	74	29.67
78026	3M57K7M231384	044	494	350	8	2	3	1	1	2	1	2	2	1	1	2	A	006703	780302	48	45	29.60	10	780302	64	57	65	29.58
78027	1D29U7Z428963	043	482	305	8	2	2	2	1	2	2	2	2	1	1	2	A	026769	780308	54	90	30.00	15	780308	63	62	95	30.02
78028	SBC5014092	260	261	076	4	1	2	2	1	2	1	2	1	2	2	2	A	012868	780322	60	71	29.75	10	780322	70	62	64	29.82
78029	1L47_7J107812	043	478	350	8	2	3	1	1	2	1	2	2	1	1	2	J	016028	780309	50	99	30.00	15	780309	63	58	74	30.13
78030	1H57U7Z417125	043	483	305	8	2	2	1	1	2	1	2	2	1	1	2	L	015528	780313	51	67	30.06	15	780313	62	57	74	30.18
78031	1X27D7_123084	043	480	250	6	2	1	1	1	2	2	2	2	1	1	2	A	023652	780414	49	87	29.70	05	780414	57	50	61	29.75
78032	HLB210813300	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	M	040180	781108	58	62	30.20	05	781108	69	58	51	30.17
78033	1N69V7J102611	043	472	305	8	2	2	1	1	2	1	2	2	1	1	2	L	026113	781113	45	49	30.30	20	781113	68	54	38	30.23
78034	HLB210820181	380	380	085	4	1	2	2	1	2	2	2	1	2	1	2	L	028695	781208	41	55	30.25	05	781208	67	53	40	30.42
78035	7A93S529833	033	399	400	8	2	2	1	1	2	1	2	2	1	1	2	A	040880	781220	38	74	30.15	10	781220	71	57	41	30.37
78036	2L69Y7P269081	045	453	301	8	2	2	1	1	2	1	2	2	1	1	2	M	019888	781229	32	39	30.10	65	781229	65	49	27	30.31

APPENDIX B - IDLE TEST RESULTS

Legend

HC - Hydrocarbon (Hexane) Emissions in Parts per Million (ppm)

CO - Carbon Monoxide in Percent

RPM - Engine Idle RPM

NO_x - Oxides of Nitrogen in ppm

1ST - Initial Idle Test

2500 - High Idle Test

2ND - Second Idle Test

S - Pass/Fail Status (1 = Pass, 2 = Fail, 5 = Fail-Smoke,
6 = Fail-Idle RPM and Smoke)

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

		DEQ IDLE TEST											HTS IDLE TEST										
	SEQ	HC				CO				RPM			HC			CO			NOX			RPM	
EPANO		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
23003	0	0045	0025	0040	1	00.7	00.1	00.7	1	0850	0900	1	0050	0030	0050	00.7	00.1	00.6				0900	0910
23003	1												0090	0030	0090	00.9	00.1	00.8	0065	0260	0080	0810	0880
23003	2												0090	0040	0080	01.0	00.2	01.0	0060	0130	0050	0830	0850
23003	3												0080	0040	0060	00.8	00.1	00.6				0810	0860
23003	4												0100	0040	0050	01.1	00.1	00.8	0060	0180	0060	0800	0850
23004	0	0145	0040	0175	1	01.8	00.2	01.8	1	0650	0650	1	0150	0020	0110	00.4	00.1	01.1				0560	0630
23004	1												0150	0030	0180	02.1	00.2	02.6	0130	0380	0150	0600	0650
23004	2												0160	0030	0140	01.2	00.1	01.5	0080	0200	0100	0760	0650
23004	3												0260	0040	0140	00.4	00.1	00.7				0530	0580
23004	4												0130	0030	0130	01.6	00.1	01.6	0110	0310	0120	0600	0620
23005	0	0055	0020	0075	1	01.1	00.2	01.0	1	0650	0650	1	0080	0020	0070	01.0	00.1	01.0	0060	0180	0070	0650	0630
23005	1												0090	0030	0080	00.9	00.1	01.0	0090	0240	0100	0740	0690
23005	2												0100	0030	0100	00.8	00.1	00.8				0770	0750
23005	3												0080	0030	0070	00.8	00.2	00.8				0840	0830
23005	4												0130	0030	0070	00.8	00.1	00.6	0060	0160	0060	0660	0730
23007	0	0040	0020	0050	1	00.3	00.1	00.3	1	0800	0800	1	0050	0030	0050	00.4	00.0	00.4				0790	0820
23007	1												0070	0020	0060	00.3	00.1	00.4	0080	0230	0045	0770	0790
23007	2												0050	0010	0060	00.2	00.1	00.3				0770	0830
23007	3												0170	0020	0100	00.2	00.1	00.0				0700	0740
23007	4												0050	0020	0080	00.2	00.1	01.2	0060	0170	0060	0800	0560
23008	0	0115	0100	0135	1	01.6	00.3	01.5	1	0800	0750	1	0110	0080	0120	01.0	00.8	01.1				0830	0870
23008	1												0150	0070	0180	02.1	00.6	02.7	0080	0400	0060	0860	0880
23008	2												0230	0100	0210	03.3	01.0	03.3				0910	0950
23008	3												0190	0030	0190	02.7	00.1	02.7				0920	0950
23008	4												0230	0100	0230	03.1	00.2	03.1	0100	0440	0100	0870	0870
23009	0	0460	0135	0480	1	00.2	00.2	00.2	1	0900	0900	1	0610	0120	0670	00.3	00.2	00.3	0030	0180	0030	0800	0820
23009	1												0140	0070	0160	01.6	00.7	01.7	0100	0360	0110	0840	0850
23009	2												0080	0060	0080	01.1	00.6	01.4				0820	0870
23009	3												0280	0090	0400	06.6	00.4	07.3				1000	0990
23009	4												0230	0080	0180	05.1	00.5	04.2	0060	0470	0180	1020	1760
23010	0	0095	0290	0200	1	00.4	00.5	00.9	1	0800	0800	1	0180	0140	0170	00.1	00.3	00.1	0100	1000	0120	0770	0790
23010	1												0250	0120	0240	00.2	00.3	00.2	0130	0890	0140	0690	0740
23010	2												0460	0230	0420	00.1	00.5	00.1				0690	0750
23010	3												0180	0200	0200	00.7	00.5	01.0				0790	0830
23010	4												0240	0330	0260	02.2	00.8	02.4	0110	0950	0120	0870	0870
23011	0	0075	0285	0095	1	01.1	06.2	00.1	1	0800	0800	1	0220	0060	0220	00.2	00.2	00.1	0040	0800	0050	0720	0740
23011	1												0120	0080	0090	00.6	00.4	00.5	0140	0910	0150	0780	0830
23011	2												0060	0050	0080	00.1	00.3	00.1				0790	0810
23011	3												0120	0070	0190	00.1	00.4	00.1				0690	0700
23011	4												0060	0040	0060	00.2	00.3	00.2	0140	1000	0140	0790	0810
23012	0	0100	0785	0210	1	02.9	01.8	02.5	1	0950	0950	1	0190	0230	0200	01.2	00.2	01.4	0070	0500	0080	0850	0880
23012	1												0230	1600	0250	02.5	04.7	02.6	0120	0460	0130	0850	0910
23012	2												0420	0820	0330	02.7	00.6	02.6				0750	0770
23012	3												0360	0100	0320	03.6	00.9	03.6				0860	0860
23012	4												0380	0090	0270	02.9	00.6	02.9	0120	0280	0120	0920	0940
23013	0	0080	0075	0095	1	00.4	00.2	00.3	1	0900	0900	1	0120	0030	0070	00.2	00.1	00.1	0080	0300	0100	0850	0830
23014	0	0075	0025	0115	1	02.2	00.2	01.8	1	0750	0750	1	0090	0020	0090	00.9	00.0	01.2	0100	0180	0120	0650	0690
23014	1												0100	0020	0090	02.2	00.1	02.1	0120	0200	0140	0660	0720
23014	2												0080	0020	0060	02.1	00.1	01.6	0090	0180	0100	0700	0720
23014	3												0110	0040	0150	01.1	00.4	01.1				0660	0670
23014	4												0240	0030	0130	01.0	00.2	01.3	0090	0230	0110	0630	0710
23015	0	0290	0140	0320	1	00.1	00.2	00.2	1	0700	0700	1	0150	0090	0190	00.0	00.0	00.0	0010	0060	0010	0530	0600
23015	1												0200	0100	0130	02.2	00.4	02.7	0120	0590	0140	0680	0730
23015	2												0240	0110	0180	02.2	00.4	02.4				0710	0720
23015	3												0170	0060	0170	03.2	00.2	03.7				0690	0740
23015	4												0140	0280	0160	02.5	00.3	02.9	0100	0500	0110	0710	0700
23016	0	0090	0075	0190	1	02.4	01.0	02.6	1	0800	0800	1	0180	0090	0180	03.5	00.5	03.6	0110	0480	0120	0680	0720
23016	1												0190	0100	0160	04.7	01.2	04.5	0140	0720	0150	0710	0730
23016	2												0120	0090	0130	01.1	01.0	01.8	0080	0620	0120	0580	0600
23016	3												0220	0090	0120	00.5	01.2	00.8				0590	0630
23016	4												0120	0080	0140	02.6	00.8	03.5	0130	0500	0130	0690	0700
23017	0	0080	0055	0090	1	03.3	01.7	03.3	1	0950	0950	1	0160	0100	0140	02.5	00.9	03.2	0120	0250	0130	0800	0860
23017	1												0190	0120	0180	04.4	01.7	04.2	0150	0300	0150	0940	1000
23017	2												0800	0150	0420	05.2	02.2	05.2				0700	0800
23017	3												0510	0140	0330	04.2	01.9	04.3	0130	0140	0130	0760	0810
23017	4												1910	0720	1550	06.6	06.3	06.6	0120	0160	0120	1300	1370
23018	0	0025	0020	0045	1	00.1	00.5	00.1	1	0800	0800	1	0060	0020	0060	00.1	00.0	00.1	0070	0130	0090	0750	0800
23018	1												0050	0030	0050	00.1	00.0	00.1	0080	0140	0090	0750	0750
23018	2												0080	0020	0050	00.1	00.1	00.1				0730	0750
23018	3												0060	0020	0060	00.3	00.0	00.3	0080	0150	0080	0670	0670
23018	4												0370	0100	0310	03.0	00.2	03.6	0100	0300	0100	0690	0640
23019	0	0130	0185	0130	1	06.7	08.2	04.0	1	1100	1100	1	0260	0110	0190	04.7	03.1	04.9	0080	0160	0100	0890	1020
23019	1												0150	0120	0160	03.6	03.1	02.2				0900	0960
23019	2												0220	0100	0200	03.9	02.2	03.5				0840	0900
23019	3												0330	0100	0210	05.2	02.3	04.8	0130	0230	0150	0850	0950
23019	4												0340	0110	0140	03.9	02.1	02.9	0140	0260	0160	0780	0920
23021	0	0272	0082	0280	1	02.1	00.1	01.5	1	0850	0850	1	0220	0030	0140	01.9	00.1	00.8	0120	0220	0140	0690	0700
23021	1												0530	0100	0520	01.4	00.2	01.6	0120	0410	0120	0670	0680
23021	2												0390	0060	0390	01.0	00.1	01.5				0720	0750
23021	3												0540	0120	0540	01.6	00.2	01.2	0060	0190	0060	0680	0730
23021	4												0200	0350	0220	01.4	00.2	01.5	0090	0340	0070	0710	0760
23022	0	0065	0095	0160	1	02.6	02.4	02.5	1	1100	1100	1	0140	0050	0090	00.9	00.7	01.4	0130	0190	0140	0750	0900
23022	1												0170	0030	0120	02.0	00.7	01.9	0110	0180	0130	0680	0750
23022	2												0140	0030	0130	02.1	00.5	01.5				0600	0750
23022	3												0080	0020	0060	00.6	00.8	00.6	0060	0130	0060	0640	0990
23022	4												0190	0350	0080	00.8	01.0	00.9	0080	0160	0090	0780	0890

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

```
      S  ---------U E D    I D L E     T E S T---------     ------------------H T S     I D L E     T E S T-----------------
      E  ---------HC-------- --------CO-------- ----RPM---     ------HC-------- -------CO------- ------NOX------ ---RPM---
EPANO Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND

23023 0  0040 0030 0065 1 00.5 00.8 01.5 1 0750 0750 1   0370 0020 0080 00.4 00.3 00.9 0120 0220 0130 0700 0740
23023 1                                                  0380 0020 0080 00.2 00.1 00.4 0100 0230 0110 0660 0700
23023 2                                                  0100 0030 0080 00.2 00.1 00.4                0670 0690
23023 3                                                  0350 0010 0070 00.1 00.0 00.2 0065 0145 0070 0680 0700
23023 4                                                  0340 0010 0050 00.1 00.0 00.2 0080 0180 0090 0690 0710

23024 0  0135 0070 0180 1 00.1 00.6 00.2 1 0650 0650 1   0180 0020 0290 00.2 00.3 00.2 0060 0250 0060 0580 0580
23024 1                                                  0250 0050 0240 00.3 00.2 00.3 0080 0270 0080 0570 0600
23024 2                                                  0400 0090 0340 00.3 00.2 00.2                0550 0580
23024 3                                                  0210 0050 0130 01.2 00.7 02.0 0070 0180 0085 0690 0740
23024 4                                                  0110 0030 0200 01.2 00.5 01.1 0120 0260 0100 0700 0660

23025 0  0175 0195 0250 1 02.9 01.5 03.5 1 0700 0700 1   0210 0200 0190 02.1 00.8 02.1 0100 0830 0120 0680 0720
23025 1                                                  0170 0600 0190 01.8 00.9 02.1 0220 2030 0260 0660 0720
23025 2                                                  0140 0870 0190 01.1 00.6 01.9                0680 0710
23025 3                                                  0240 1550 0270 03.5 00.8 01.2 0120 1150 0140 0650 0700
23025 4                                                  0290 0900 0290 04.0 00.9 03.9 0120 1000 0140 0700 0710

23026 0  0060 0285 0125 1 02.2 05.6 00.7 1 0900 0900 1   0250 0080 0170 02.4 00.5 02.0 0100 0280 0100 0750 0850
23026 1                                                  0240 0080 0220 03.6 00.1 00.8 0090 0220 0080 0990 0740
23026 2                                                  0770 0230 0340 00.2 00.5 00.2                0740 0810
23026 3                                                  0330 0100 0160 05.2 01.8 05.1 0090 0190 0100 0760 0850
23026 4                                                  0140 0050 0130 01.8 01.3 03.4 0160 0240 0140 0900 0810

23027 0  0280 0110 0325 1 02.8 00.3 02.9 1 0950 0950 1   0320 0080 0290 02.4 00.5 02.2 0090 0220 0100 0810 0820
23027 1                                                  0400 0100 0360 02.2 00.6 02.5 0090 0170 0070 0810 0830
23027 2                                                  0330 0100 0260 01.1 00.4 01.4                0750 0790
23027 3                                                  0240 0060 0190 00.7 00.3 01.1 0100 0260 0100 0710 0810
23027 4                                                  0290 0110 0270 01.9 00.3 01.9 0120 0380 0120 0810 0850

23028 0  0240 0270 0635 1 00.2 00.6 00.4 1 0850 0850 1   0180 0130 0180 00.2 00.4 00.2 0070 0460 0060 0620 0640
23028 1                                                  0130 0100 0140 00.3 00.4 00.2 0060 0820 0060 0720 0690
23028 2                                                  0180 0160 0160 00.3 00.4 00.2                0600 0660
23028 3                                                  0150 0130 0120 00.3 00.4 00.2 0050 0500 0050 0650 0690
23028 4                                                  0220 0160 0160 00.3 00.5 00.3 0080 0650 0070 0640 0720

23029 0  0030 0035 0255 1 00.7 00.3 00.8 1 0800 0800 1   0130 0080 0080 00.7 00.1 00.7 0050 0150 0070 0800 0780
23029 1                                                  0090 0050 0060 01.0 00.1 00.7                0750 0830
23029 2                                                  0100 0030 0060 01.0 00.2 00.9                0780 0810
23029 3                                                  0050 0060 0050 01.0 00.2 00.9 0060 0150 0060 0760 0780
23029 4                                                  0090 0050 0050 01.2 00.1 00.9 0060 0150 0060 0790 0860

23030 0  0055 0065 0095 1 01.2 00.1 01.2 1 0900 0900 1   0070 0030 0060 00.7 00.2 00.9 0120 0430 0140 0740 0770
23030 1                                                  0070 0040 0060 01.0 00.5 01.4                0680 0740
23030 2                                                  0100 0030 0080 01.1 00.2 00.9                0680 0750
23030 3                                                  0070 0040 0060 00.7 00.3 00.9 0100 0460 0130 0680 0710
23030 4                                                  0060 0040 0070 00.9 00.3 01.1 0140 0660 0160 0690 0710

23031 0  0260 0180 0350 1 00.8 00.2 00.7 1 0650 0650 1   0360 0090 0960 00.5 00.2 00.2 0100 0550 0080 0600 0580
23031 1                                                  0500 0160 0510 00.3 00.3 00.5 0090 0900 0110 0650 0650
23031 2                                                  0700 1360 0860 01.0 00.5 01.1                0630 0630
23031 3                                                  0990 1850 1240 00.3 00.2 00.6 0060 1000 0080 0630 0680
23031 4                                                  0510 1980 0940 01.6 00.3 00.9 0120 1150 0120 0700 0700

23032 0  0065 0065 0170 1 02.0 00.3 02.3 1 0800 0800 1   0120 0040 0120 01.8 00.3 02.1 0100 0310 0120 0730 0770
23032 1                                                  0140 0050 0130 01.4 00.3 01.9                0700 0740
23032 2                                                  0130 0050 0120 01.8 00.3 02.1                0790 0810
23032 3                                                  0130 0040 0100 02.2 00.2 01.8 0120 0280 0120 0700 0750
23032 4                                                  0240 0050 0170 00.9 00.3 01.2 0090 0350 0120 0620 0690

23033 0  0050 0075 0070 1 01.1 00.1 01.4 1 0900 0900 1   0060 0100 0060 00.2 00.6 00.5 0110 0440 0130 0810 0900
23033 1                                                  0120 0150 0080 01.2 00.2 00.6 0100 0340 0100 0870 0880
23033 2                                                  0080 0180 0060 00.6 00.2 00.5                0880 0840
23033 3                                                  0090 0070 0080 00.5 00.2 00.5 0120 0650 0140 0730 0780
23033 4                                                  0140 0100 0090 00.9 00.2 01.0 0140 0580 0150 0820 0890

23034 0  0035 0045 0075 1 00.3 00.1 00.4 1 0900 0900 1   0190 0070 0230 00.2 00.2 00.2 0070 0160 0080 0720 0780
23034 1                                                  0090 0050 0050 00.3 00.2 00.4 0080 0200 0090 0860 0860
23034 2                                                  0050 0030 0030 00.2 00.4 00.1                0780 0820
23034 3                                                  0150 0050 0060 00.1 00.2 00.1 0060 0160 0080 0740 0790
23034 4                                                  0150 0050 0130 04.1 00.2 04.2 0140 0270 0150 0970 1020

23035 0  0115 0115 0200 1 00.3 00.2 00.6 1 0700 0700 1   0130 0020 0130 00.4 00.3 00.4 0090 0300 0100 0660 0650
23035 1                                                  0240 0090 0220 01.1 00.3 01.5 0110 0450 0120 0640 0670
23035 2                                                  0380 0080 0250 00.3 00.3 00.6                0680 0690

23036 0  0140 0135 0130 1 00.9 00.7 01.0 1 0800 0750 1   0400 0060 0220 00.5 00.4 00.6 0065 0360 0085 0660 0680
23036 1                                                  0200 0050 0200 00.7 00.5 00.8                0610 0650
23036 2                                                  0140 0050 0150 01.1 00.7 01.2                0640 0680
23036 3                                                  0220 0350 0230 00.5 00.3 00.9 0070 0290 0100 0600 0660
23036 4                                                  0310 0080 0160 00.4 00.3 00.6 0090 0350 0100 0640 0660

23037 0  0165 0060 0200 1 02.9 00.4 02.7 1 0900 1000 1   0230 0050 0210 02.0 00.4 02.4 0100 0220 0100 0770 0830
23037 1                                                  0270 0100 0240 03.6 01.3 03.4 0100 0240 0100 0770 0840
23037 2                                                  0370 0120 0240 04.1 00.6 02.8                0770 0900
23037 3                                                  0250 0090 0230 03.4 00.9 03.3 0120 0250 0120 0810 0880
23037 4                                                  0180 0080 0210 02.4 00.6 02.0 0080 0240 0110 0990 0900

23038 0  0085 0055 0055 1 01.4 00.4 01.3 1 0800 0800 1   0080 0040 0050 01.4 00.4 00.9 0100 0590 0100 0870 0870
23038 1                                                  0160 0060 0130 01.9 00.3 01.5 0080 0650 0090 0780 0810
23038 2                                                  0140 0090 0120 02.1 00.7 01.8                0810 0810
23038 3                                                  0230 0040 0140 00.6 00.1 00.8 0110 0630 0120 0750 0770
23038 4                                                  0160 0040 0150 02.2 00.3 02.0 0120 0600 0150 0760 0850

23039 0  0125 0075 0140 1 02.1 00.2 01.7 1 0800 0800 1   0130 0060 0110 01.1 00.3 01.6 0060 0220 0065 0710 0750
23039 1                                                  0250 0050 0120 00.8 00.3 01.2                0560 0580
23039 2                                                  0150 0060 0140 02.5 00.4 01.9                0590 0620
23039 3                                                  0110 0040 0110 00.5 00.3 00.6 0030 0130 0040 0520 0540
23039 4                                                  0340 0030 0130 00.2 00.1 00.3 0040 0220 0060 0490 0570

23040 0  0345 0170 0370 1 03.1 01.2 03.2 1 1000 1000 1   0310 0080 0290 02.1 00.4 02.3 0080 0400 0080 0880 0940
23040 1                                                  0440 0130 0440 03.5 00.4 04.0                0680 0680
23040 2                                                  0340 0140 0360 03.1 00.4 03.1                0710 0720
23040 3                                                  0270 0080 0230 03.0 00.3 03.3 0100 0280 0100 0740 0810
23040 4                                                  0200 0070 0170 01.5 00.2 01.6 0100 0420 0110 0770 0820
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

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      S  ---------D E Q      I D L E      T E S T-----------    ----------------H T S     I D L E      T E S T----------------
      E  ---------HC------   --------CO-------  ----RPM----     -------HC-------  -------CO-------  -------NOX------  ---RPM---
EPANO Q  1ST 2500 2ND S   1ST 2500 2ND S   1ST  2ND S      1ST  2500 2ND   1ST  2500 2ND   1ST  2500 2ND   1ST  2ND
23041 0  0115 0030 0135 1  00.4 00.1 00.4 1  0700 0700 1   0380 0060 0300  00.2 00.3 00.2  0070 0220 0070  0560 0600
23041 1                                                    0400 0040 0190  00.4 00.3 00.5  0050 0200 0060  0630 0660
23041 2                                                    0320 0080 0240  00.3 00.3 00.5                  0560 0610
23041 3                                                    0190 0060 0190  00.9 00.2 00.8  0090 0240 0100  0630 0650
23041 4                                                    0200 0035 0160  00.6 00.2 00.6  0080 0280 0090  0610 0620

23042 0  0085 0030 0040 1  02.7 00.1 02.3 1  1050 1100 1   0120 0050 0060  01.9 00.3 00.9  0100 0200 0110  1050 1020
23042 1                                                    0140 0050 0120  02.5 00.2 02.4                  0890 0860
23042 2                                                    0220 0090 0150  02.3 00.1 02.4                  0760 0780
23042 3                                                    0200 0030 0210  09.2 00.1 09.5  0120 0280 0120  0780 0780
23042 4                                                    0500 1170 0560  01.9 00.3 02.4  0120 0340 0150  1000 1070

23043 0  0220 0095 0220 1  00.8 00.3 01.2 1  0800 0800 1   0260 0070 0210  00.8 00.2 00.3  0100 0260 0110  0750 0780
23043 1                                                    0140 0050 0290  00.7 00.1 00.9                  0710 0740
23043 2                                                    0110 0030 0100  03.1 00.1 03.1                  0750 0780
23043 3                                                    0060 0030 0060  01.3 00.1 01.2  0060 0200 0070  0790 0810
23043 4                                                    0070 0020 0060  01.3 00.1 01.5  0660 0840 0700  0790 0810

23044 0  0130 0055 0090 1  00.8 00.1 01.3 1  0900 0900 1   0120 0030 0090  00.9 00.2 01.8  0220 0780 0210  0790 0820
23044 1                                                    0390 0300 0120  01.0 00.5 02.2  0060 0520 0070  0700 0700
23044 2                                                    0270 0100 0320  04.6 00.7 05.6                  0610 0600
23044 3                                                    0230 0060 0210  04.7 00.2 05.1  0140 0560 0150  0560 0630
23044 4                                                    0230 0070 0260  05.2 00.4 06.7  0120 0610 0140  0670 0660

23045 0  0050 0050 0065 1  01.8 02.3 01.8 1  1000 1000 1   0060 0050 0060  00.2 02.3 00.8  0250 0450 0280  0830 0890
23045 1                                                    0050 0080 0060  00.1 02.2 00.1  0090 0310 0120  0670 0720
23045 2                                                    0040 0050 0060  00.1 01.1 00.7                  0750 0860
23045 3                                                    0050 0050 0050  00.1 00.6 00.5  0100 0620 0160  0650 0820
23045 4                                                    0060 0050 0060  00.1 00.7 00.7  0130 0640 0220  0700 0800

23046 0  0235 0095 0245 1  02.8 00.5 02.6 1  1000 1000 1   0270 0090 0270  02.2 00.3 02.2  0130 0550 0140  0780 0820
23046 1                                                    0310 0080 0300  02.6 00.3 02.4                  0780 0740
23046 2                                                    0300 0090 0260  01.7 00.3 02.0                  0770 0830
23046 3                                                    0300 0100 0300  02.6 00.3 02.7  0080 0360 0080  0760 0770
23046 4                                                    0160 0040 0160  00.4 00.2 00.5  0120 0230 0120  0800 0840

23047 0  0430 0085 0330 1  02.1 00.4 02.1 1  0700 0700 1   0920 0120 0450  01.4 00.9 02.1  0110 0340 0120  0560 0630
23047 1                                                    1000 0090 1120  01.5 00.7 01.4                  0590 0630
23047 2                                                    1870 0140 1200  01.7 00.5 02.1  0060 0230 0070  0570 0610
23047 3                                                    0410 0080 0640  02.3 00.1 02.0  0100 0310 0100  0600 0610
23047 4                                                    0710 0450 0350  01.8 00.3 01.7  0080 0300 0090  0590 0600

23048 0  0015 0010 0030 1  01.5 00.1 01.1 1  0850 0850 1   0100 0030 0060  01.0 00.1 01.3  0110 0260 0120  0730 0810
23048 1                                                    0050 0020 0050  01.1 00.0 01.3                  0730 0760
23048 2                                                    0100 0040 0080  01.0 00.1 00.9                  0640 0770
23048 3                                                    0130 0030 0120  02.5 00.1 02.6  0080 0180 0080  0590 0630
23048 4                                                    0120 0030 0090  01.6 00.1 01.5  0080 0230 0080  0770 0800

33003 0  0155 0040 0095 1  00.5 00.2 00.8 1  0950 1050 1   0140 0070 0090  00.6 01.8 00.8                  0720 0740
33003 1                                                    0350 0050 0100  01.9 00.2 00.6  0080 0300 0100  0550 1040
33003 2                                                    0220 0060 0130  00.4 00.3 00.7                  0930 1020
33003 3                                                    0230 0070 0110  00.7 00.3 00.8                  0920 1050
33003 4                                                    0130 0040 0090  01.0 00.2 00.9  0090 0300 0100  0840 1000

33004 0  0045 0025 0070 1  00.2 00.1 00.2 1  0850 0850 1   0070 0030 0080  00.1 00.1 00.2                  0780 0800
33004 1                                                    0100 0040 0060  00.2 00.4 00.4  0070 0280 0080  0780 0920
33004 2                                                    0090 0050 0080  00.3 00.7 00.2  0070 0260 0060  0800 0810
33004 3                                                    0080 0040 0080  00.6 00.3 00.9  0050 0320 0080  0870 0920
33004 4                                                    0070 0030 0080  00.5 00.2 01.2  0080 0440 0100  0880 0970

33005 0  0070 0045 0110 1  00.9 01.4 01.0 1  0800 0800 1   0140 0020 0100  00.4 00.2 00.8                  0870 0960
33005 1                                                    0200 0010 0200  00.2 01.8 00.2  0065 0260 0080  0640 0720
33005 2                                                    0240 0100 0160  00.2 02.2 00.3  0060 0200 0080  0670 0700
33005 3                                                    0150 0070 0140  00.3 01.5 00.4                  0670 0720
33005 4                                                    0270 0030 0180  00.2 00.4 00.8  0060 0820 0120  0690 0710

33006 0  0025 0020 0070 1  00.6 00.2 00.4 1  0800 0800 1   0050 0030 0050  00.3 00.1 00.5                  0740 0810
33006 1                                                    0050 0030 0040  00.6 00.2 00.5  0090 0150 0080  1050 0920
33006 2                                                    0060 0030 0030  00.6 00.2 00.5  0060 0090 0040  0700 0750
33006 3                                                    0050 0030 0060  00.7 00.2 00.6                  0820 0760
33006 4                                                    0060 0050 0600  00.6 00.2 00.6  0060 0100 0060  0760 0780

33007 0  0020 0020 0055 1  00.4 00.3 00.4 1  0800 0950 1   0050 0020 0040  00.6 00.1 00.7  0050 0240 0050  0910 0980
33007 1                                                    0100 0040 0050  00.7 00.1 00.7  0060 0170 0070  0860 0940
33007 2                                                    0080 0030 0060  00.9 00.1 00.6                  0770 0810
33007 3                                                    0050 0020 0050  00.4 00.1 00.6                  0830 0850
33007 4                                                    0040 0020 0040  00.4 00.1 00.5  0060 0070 0090  0830 0840

33008 0  0075 0045 0115 1  01.1 00.7 00.7 1  0950 0950 1   0080 0020 0060  01.1 00.2 00.2  0030 0240 0040  0720 0730
33008 1                                                    0090 0030 0090  00.3 00.2 01.1  0110 0360 0100  0810 0890
33008 2                                                    0060 0030 0070  00.2 00.4 00.9  0060 0300 0090  0750 0860
33008 3                                                    0170 0080 0180  00.4 00.2 00.4                  0770 0850
33008 4                                                    0080 0020 0060  00.2 00.2 00.2  0070 0200 0080  0780 0830

33009 0  0235 0060 0255 1  00.3 00.1 00.3 1  0700 0750 1   0700 0090 0500  00.4 00.1 00.3  0020 0180 0030  0670 0690
33009 1                                                    1100 1510 1180  00.5 00.4 00.5  0060 0200 0070  0680 0720
33009 2                                                    0840 1120 0860  00.4 00.1 00.4  0030 0180 0030  0730 0740
33009 3                                                    0110 0090 0120  02.2 00.3 02.0                  0710 0750
33009 4                                                    0080 0030 0050  01.6 00.1 01.4  0060 0170 0070  0760 0790

33010 0  0020 0080 0080 1  00.3 00.1 00.3 1  1200 0800 1   0090 0050 0080  00.4 00.1 00.3  0060 0020 0060  0700 0780
33010 1                                                    0050 0030 0050  00.3 00.1 00.3  0060 0120 0060  0750 0780
33010 2                                                    0140 0060 0090  00.4 00.2 00.5                  0700 0760
33010 3                                                    0210 0090 0170  01.7 00.2 01.2                  0620 0680
33010 4                                                    0100 0030 0060  00.7 00.2 00.8  0070 0140 0070  0700 0740

33011 0  0075 0040 0105 1  01.0 00.4 01.0 1  0750 0800 1   0130 0030 0100  00.5 00.2 00.4  0050 0160 0060  0660 0750
33011 1                                                    0030 0020 0020  00.1 00.1 00.1  0070 0250 0070  1040 1120
33011 2                                                    0080 0020 0080  02.1 00.2 02.5                  0960 0980
33011 3                                                    0100 0030 0090  03.2 00.1 03.5                  0960 1040
33011 4                                                    0060 0020 0050  00.8 00.6 00.7  0060 0240 0060  0790 0810

33012 0  0060 0045 0175 1  00.5 00.4 00.5 1  0800 0800 1   0140 0680 0140  00.4 00.4 00.6  0100 0320 0120  0670 0700
33012 1                                                    0130 1130 0120  00.2 00.5 00.4  0110 0400 0140  0780 0840
33012 2                                                    0160 2440 0170  00.5 00.5 00.7                  0750 0780
33012 3                                                    0130 0320 0120  00.7 00.5 00.8  0090 0580 0110  0720 0780
```

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

```
      S   ---------D E Q    I D L E     T E S T----------    ------------H T S   I D L E    T E S T---------------
      E   --------HC-------  --------CO-------  ----RPM---    -----HC--------  ------CO-------  -----NOX------  --RPM---
EPANO Q   1ST 2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S    1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND

33013 0  0015 0035 0045 1 00.1 02.8 00.1 1 1100 1100 1   0040 0030 0050 00.1 00.8 00.1 0060 0190 0080 0990 1030
33013 1                                                  0350 0050 0040 00.1 00.4 00.2 0020 0140 0050 1100 1160

33014 0  0065 0045 0210 1 00.8 00.7 00.8 1 0550 0550 1   0170 0100 0160 00.7 00.2 00.5 0090 0210 0100 0490 0580
33014 1                                                  0380 0040 0080 00.3 00.2 00.3 0050 0170 0070 0780 0840
33014 2                                                  0100 0050 0100 00.2 00.1 00.2                0690 0700
33014 3                                                  0120 0080 0080 00.4 00.2 00.3 0050 0170 0060 0800 0840
33014 4                                                  0140 0030 0080 00.1 00.1 00.1 0060 0180 0080 0700 0730

33015 0  0280 0220 0220 1 05.6 05.8 03.4 1 0800 0800 1   0360 0210 0320 03.6 06.6 03.5 0120 0210 0120 0690 0790
33015 1                                                  0340 0220 0330 04.2 06.8 04.4 0100 0180 0100 0720 0770
33015 2                                                  0250 0210 0240 03.5 07.1 03.9                1080 1130
33015 3                                                  0310 0210 0340 03.0 05.5 03.1 0080 0130 0080 0690 0720
33015 4                                                  2810 2280 2740 09.9 09.9 09.9 0180 0210 0160 0810 0910

33016 0  0125 0100 0140 1 02.3 01.6 01.0 1 0800 0800 1   0100 0040 0080 00.4 00.5 00.2 0150 1650 0160 0730 0750
33016 1                                                  0120 0380 0100 00.7 00.6 00.8 0220 2150 0220 0670 0710
33016 2                                                  0130 0080 0120 00.8 00.8 00.8                0670 0680
33016 3                                                  0390 0040 0060 00.1 00.3 00.1 0130 1200 0130 0650 0670
33016 4                                                  0140 0060 0190 02.9 00.3 04.7 0120 1240 0050 0770 0790

33017 0  0270 0145 0150 1 00.1 03.3 00.2 1 0800 0800 1   0660 0160 0600 00.2 03.1 00.2 0050 0250 0060 0720 0760
33017 1                                                  0230 0130 0130 00.2 03.3 00.2 0060 0380 0100 0610 0670
33017 2                                                  1250 0230 1560 00.3 03.0 00.2                0800 0740
33017 3                                                  1320 0230 1490 00.2 01.9 00.2 0030 0270 0020 0750 0760
33017 4                                                  1490 0250 1870 00.2 01.9 00.2 0040 0360 0040 0800 0800

33018 0  0035 0090 0045 1 00.4 03.1 00.2 1 0900 0900 1   0340 0030 0030 00.2 02.0 00.1 0100 0270 0140 0700 0790
33018 1                                                  0370 0040 0030 00.5 02.0 00.3 0130 0300 0150 0720 0740
33018 2                                                  0030 0030 0030 00.1 01.8 00.2                0750 0750
33018 3                                                  0050 0040 0020 00.2 02.3 00.2 0150 0470 0160 0970 1090
33018 4                                                  0380 0060 0060 01.4 02.3 01.7 0120 0290 0120 0810 0860

33019 0  0120 0110 0230 1 02.3 00.5 02.1 1 0700 0700 1   0280 0050 0170 00.5 00.2 00.9 0090 0250 0100 0620 0710
33019 1                                                  0340 0350 0320 06.3 00.7 05.9 0180 0360 0190 0770 0780
33019 2                                                  0350 0130 0340 05.2 00.5 05.8                0620 0650
33019 3                                                  0440 0130 0400 06.3 00.6 06.3 0090 0250 0100 0580 0650
33019 4                                                  0400 1200 0350 05.6 00.6 06.1 0120 0410 0130 0560 0590

33020 0  0070 0085 0050 1 03.0 00.1 01.5 1 0700 0700 1   0160 0040 0050 03.0 00.2 01.4 0080 0370 0100 0650 0720
33020 1                                                  0390 0030 0040 02.4 00.2 01.8 0070 0160 0070 0630 0690
33020 2                                                  0050 0010 0030 02.0 00.3 01.1                0810 0850
33020 3                                                  0320 0020 0020 00.7 00.3 00.5 0070 0120 0070 1000 1120
33020 4                                                  0770 0640 1130 00.8 00.2 00.9 0090 0290 0060 0840 0930

33021 0  0150 0095 0150 1 03.0 02.1 02.9 1 0700 0700 1   0160 0070 0130 00.9 01.9 01.9 0140 0280 0140 0680 0720

33022 0  0090 0165 0210 1 00.1 02.7 01.0 1 0800 0800 1   0120 0120 0080 00.2 01.9 00.2 0130 0680 0140 0820 0890
33022 1                                                  0160 0160 0120 00.2 01.8 00.2 0080 0720 0100 0700 0770
33022 2                                                  0200 0160 0190 04.3 03.3 05.0                1270 1270
33022 3                                                  0190 0180 0140 01.6 03.6 02.4 0090 0240 0080 0840 0850
33022 4                                                  0160 0150 0180 02.2 02.5 03.0 0110 0450 0130 0770 0850

33023 0  0065 0030 0095 1 00.1 00.1 00.1 1 0600 0600 1   0140 0040 0090 00.1 00.1 00.1 0060 0350 0070 0600 0610
33023 1                                                  0350 0010 0050 00.2 00.2 00.1 0040 0370 0050 0690 0680
33023 2                                                  0060 0030 0090 00.3 00.3 00.2                0740 0620
33023 3                                                  0350 0030 0060 00.1 00.2 00.1 0060 0360 0070 0660 0660
33023 4                                                  0350 0030 0050 00.1 00.2 00.1 0050 0400 0070 0730 0770

33024 0  0110 0055 0080 1 00.9 00.3 00.3 1 0700 0850 1   0100 0050 0060 00.2 00.3 00.2 0070 0720 0180 0600 0740
33024 1                                                  0300 0090 0240 06.2 00.5 04.7 0120 0910 0120 0600 0600
33024 2                                                  0250 0090 0220 03.9 00.4 03.4                0620 0660
33024 3                                                  0180 0130 0190 03.8 00.9 04.2 0105 0520 0110 0620 0640
33024 4                                                  0190 0060 0270 03.4 00.4 04.2 0110 0560 0120 0620 0620

33025 0  0050 0105 0070 1 00.7 00.1 00.6 1 0900 0900 1   0120 0140 0070 00.3 00.2 00.5 0060 0200 0070 0750 0900
33025 1                                                  0120 0150 0050 00.4 00.2 00.4 0100 0180 0080 0810 0910
33025 2                                                  0120 0160 0060 00.4 00.3 00.5                0800 0920
33025 3                                                  0000 0000 0000 00.1 00.0 00.2 0045 0090 0050 0820 0860
33025 4                                                  0050 0040 0030 00.4 00.1 00.4 0060 0180 0050 0840 0880

33026 0  0185 0130 0195 1 03.1 02.6 02.6 1 0900 0900 1   0200 0080 0180 04.3 00.6 02.3 0100 0220 0120 0800 0850
33026 1                                                  0300 0050 0240 02.2 00.3 04.0 0110 0270 0130 0800 0810
33026 2                                                  0850 0140 0630 02.1 00.5 04.1                0700 0760
33026 3                                                  0450 0120 0420 01.6 00.3 06.3 0090 0330 0110 0700 0760
33026 4                                                  0410 0060 0240 00.9 00.3 01.9 0080 0340 0090 0760 0830

33027 0  0165 0055 0190 1 02.2 00.1 02.4 1 0900 0900 1   0190 0020 0240 01.9 00.1 03.1 0100 0330 0120 0750 0800
33027 1                                                  0170 0040 0170 02.0 00.2 02.4                0760 0820
33027 2                                                  0240 0050 0250 02.5 00.1 02.6                0600 0640
33027 3                                                  0220 0060 0240 01.1 00.1 02.3 0100 0250 0100 0650 0600
33027 4                                                  0200 0030 0190 01.7 00.1 02.2 0110 0280 0130 0590 0610

33028 0  1660 0570 0120 1 02.5 00.6 03.6 1 0800 1000 1   0120 0030 0080 02.4 00.2 01.9 0100 0470 0100 0740 0760
33028 1                                                  0130 0030 0110 03.9 00.3 02.1 0090 0280 0090 0730 0740
33028 2                                                  0120 0050 0120 03.2 00.8 03.1                0750 0800
33028 3                                                  0380 0030 0090 02.2 00.1 02.3 0120 0420 0120 0810 0800
33028 4                                                  0360 0030 0040 00.3 00.1 00.1 0120 0480 0100 0720 0700

33029 0  0035 0030 0040 1 01.8 00.4 01.6 1 1000 1000 1   0350 0020 0040 02.0 00.3 01.4 0070 0180 0070 0870 0970
33029 1                                                  0110 0050 0060 02.5 00.5 01.9 0060 0190 0050 0840 0910
33029 2                                                  0090 0030 0060 03.6 00.6 02.5                0700 0850
33029 3                                                  0390 0050 0060 02.7 00.4 01.7 0080 0250 0080 0820 0920
33029 4                                                  0160 0060 0300 01.6 00.4 01.0 0080 0140 0080 0620 0640

33030 0  0070 0035 0160 1 00.5 00.2 00.1 1 0650 0650 1   0110 0020 0060 00.2 00.1 00.1 0080 0270 0080 0600 0600
33030 1                                                  0130 0050 0200 00.2 00.1 00.3 0100 0490 0110 0720 0800
33030 2                                                  0130 0050 0160 00.4 00.1 00.9                0690 0740
33030 3                                                  0120 0050 0090 00.5 00.1 00.4 0110 0470 0130 0750 0800
33030 4                                                  0290 0130 0250 02.9 00.2 03.3 0130 0060 0140 0710 0710

33031 0  0125 0145 0210 1 02.6 02.2 02.4 1 0750 0750 1   0200 0070 0160 00.5 00.3 00.8 0070 0420 0080 0640 0660
33031 1                                                  0210 0070 0200 01.2 00.3 01.3 0090 0380 0100 0600 0650
33031 2                                                  0430 0110 0300 00.3 00.3 00.5                0610 0640
33031 3                                                  0180 0100 0180 01.0 00.4 01.0 0090 0380 0100 0680 0680
33031 4                                                  0240 0050 0230 00.6 00.3 00.9 0060 0410 0110 0610 0670
```

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

```
       S
       E  ---------D E Q    I D L E    T E S T----------   -------------H T S    I D L E    T E S T---------------
EPAVD  Q  --------HC------   --------CO------   ----RPM---   ------HC------  ------CO------  ------NOX-----  --RPM---
          1ST  2500  2ND S   1ST  2500  2ND S   1ST  2ND S   1ST  2500 2ND   1ST  2500 2ND   1ST  2500 2ND   1ST  2ND
33032 0  0070 0040 0145 1 00.6 00.5 01.3 1 0650 0650 1   0080 0020 0080 00.7 00.2 01.1  0040 0080 0060  0620 0630
33032 1                                                   0100 0030 0130 00.6 00.3 01.8                  0800 0860
33032 2                                                   0160 0060 0130 00.3 00.4 00.8                  0710 0820
33032 3                                                   0270 0030 0220 04.0 00.3 04.0  0105 0150 0120  0620 0660
33032 4                                                   0360 0100 0390 05.2 00.2 05.4  0110 0180 0100  0610 0630

33033 0  0035 0020 0055 1 00.0 00.1 00.1 1 0850 0850 1   0100 0060 0100 00.1 00.2 00.1                  0780 0820
33033 1                                                   0050 0020 0050 00.2 00.4 00.1  0090 0220 0080  0800 0850
33033 2                                                   0080 0020 0060 00.1 00.2 00.1                  0720 0760
33033 3                                                   0080 0020 0050 00.2 00.2 00.1  0080 0190 0080  0810 0860
33033 4                                                   0050 0020 0030 00.0 00.2 00.1  0100 0400 0110  0760 0780

33034 0  0050 0035 0080 1 00.2 00.1 00.2 1 0750 0750 1   0100 0040 0120 00.5 00.4 00.5  0120 0340 0130  0700 0780
33034 1                                                   0120 0030 0120 01.2 00.3 01.3                  0640 0710
33034 2                                                   0080 0050 0120 00.7 01.4 00.9                  0870 0720
33034 3                                                   0160 0070 0100 00.6 00.2 00.6  0100 0260 0110  0800 0810
33034 4                                                   0070 0030 0080 00.3 00.3 00.3  0120 0270 0120  0740 0780

33036 0  0070 0015 0040 1 00.6 00.2 00.5 1 0900 0900 1   0060 0020 0050 00.2 00.1 00.4  0070 0230 0090  0710 0760
33036 1                                                   0090 0030 0050 00.3 00.2 00.5                  0700 0730
33036 2                                                   0040 0060 0090 00.6 00.2 00.6                  0670 0720
33036 3                                                   0100 0030 0050 01.8 00.3 00.8  0120 0180 0100  0670 0690
33036 4                                                   0060 0020 0080 01.2 00.2 01.1  0080 0160 0090  0840 0730

33037 0  0035 0060 0050 1 00.2 00.1 00.3 1 0700 0700 1   0060 0120 0060 00.3 00.2 00.3  0100 0180 0120  0630 0650
33037 1                                                   0050 0040 0050 00.5 00.2 00.6                  0640 0670
33037 2                                                   0080 0060 0060 00.7 00.2 00.8                  0630 0670
33037 3                                                   0050 0040 0030 00.2 00.1 00.2  0080 0170 0110  0650 0680
33037 4                                                   0060 0030 0050 00.5 00.1 00.4  0000 0000 0000  0650 0660

33038 0  0315 0095 0195 1 00.1 00.1 00.3 1 0700 0700 1   0340 0120 0350 00.4 00.1 00.3  0110 0400 0080  0690 0650
33038 1                                                   0230 1230 0200 04.6 02.0 02.1                  0740 0780
33038 2                                                   1950 2000 2000 02.3 00.3 02.4  0080 0340 0080  0600 0710
33038 3                                                   1480 1700 1600 01.4 00.2 01.8  0080 0260 0100  0650 0710
33038 4                                                   2320 1670 1540 03.1 00.2 02.2  0100 0260 0100  0730 0740

33039 0  0200 0040 0130 1 00.1 00.1 00.1 1 0800 0800 1   0500 0080 0250 00.2 00.1 00.1  0050 0140 0060  0680 0790
33039 1                                                   0170 0030 0110 00.1 00.2 00.1                  0800 0860
33039 2                                                   0480 0100 0380 00.2 00.1 00.1  0040 0130 0050  0760 0800
33039 3                                                   0420 0060 0240 00.1 00.1 00.1  0040 0140 0060  0760 0810
33039 4                                                   0370 0080 0290 00.1 00.1 00.1  0040 0140 0050  0770 0810

33040 0  0030 0015 0050 1 00.1 00.1 00.1 1 0900 0900 1   0070 0020 0060 00.1 00.1 00.1  0100 0360 0110  0880 0900
33040 1                                                   0030 0020 0060 00.2 00.0 00.2  0030 0040 0030  0800 0800
33040 2                                                   0060 0020 0050 00.1 00.1 00.1                  0830 0860
33040 3                                                   0030 0230 0250 00.1 00.1 00.1  0100 0320 0150  0780 0870
33040 4                                                   0030 0020 0030 00.1 00.1 00.1  0120 0290 0110  0970 0970

33041 0  0070 0035 0140 1 01.0 00.1 02.9 1 0825 0825 1   0100 0060 0100 00.8 00.2 00.8  0180 0480 0190  0710 0730
33041 1                                                   0140 0060 0140 01.1 00.2 02.2  0110 0550 0110  0670 0680
33041 2                                                   0130 0060 0120 01.1 00.2 01.1                  0690 0710
33041 3                                                   0090 0040 0060 00.5 00.2 00.3  0160 0800 0150  0710 0700
33041 4                                                   0110 0070 0090 00.2 00.2 00.3  0110 0600 0140  0660 0720

33042 0  0035 0030 0060 1 01.5 00.5 01.5 1 0850 0850 1   0050 0030 0040 01.2 00.2 01.3  0060 0180 0060  0890 0890
33042 1                                                   0110 0050 0060 02.2 00.4 02.1                  0780 0820
33042 2                                                   0110 0030 0050 00.1 00.1 00.1  0070 0160 0080  0780 0800
33042 3                                                   0080 0030 0050 00.1 00.1 00.1  0060 0220 0090  0750 0810

33043 0  0045 0050 0090 1 00.1 00.1 00.1 1 1000 1000 1   0090 0050 0080 00.1 00.1 00.1                  0970 0910

43002 0  0075 0055 0515 1 00.7 00.1 00.7 1 0600 0600 1   0210 0070 0200 00.8 00.8 00.7                  0560 0560
43002 1                                                   0270 0080 0150 00.6 00.1 00.6  0080 0110 0060  0600 0640
43002 2                                                   0110 0050 0120 01.2 00.3 00.9                  0640 0700
43002 3                                                   0420 0130 0200 00.7 00.1 00.8                  0610 0680
43002 4                                                   0230 0100 0120 01.5 00.2 01.1  0700 0140 0070  0630 0670

43003 0  0065 0085 0085 1 00.4 01.0 00.4 1 0700 0700 1   0100 0100 0090 00.2 00.4 00.3                  0880 0960
43003 1                                                   0310 0280 0420 00.1 00.5 00.1  0080 0400 0080  0860 0900
43003 2                                                   0050 0050 0040 00.4 00.7 00.4  0090 0500 0090  1200 1250
43003 3                                                   0100 0150 0090 01.3 00.9 00.9                  0740 0780
43003 4                                                   0080 0060 0050 00.9 02.1 00.8  0090 0280 0080  1450 1470

43004 0  0030 0025 0095 1 00.2 00.1 00.2 1 0850 0900 1   0110 0030 0050 00.2 00.1 00.2  0050 0220 0060  0670 0780
43004 1                                                   0050 0020 0030 00.1 00.2 00.1  0070 0480 0070  0770 0790
43004 2                                                   0050 0020 0050 00.2 00.2 00.2                  0720 0740
43004 3                                                   0180 0040 0090 00.2 00.2 00.2                  0700 0770
43004 4                                                   0070 0030 0050 00.1 00.1 00.2  0070 0320 0090  0570 0640

43005 0  0450 0135 0400 1 01.1 00.3 01.2 1 0900 0900 1   0590 0090 0610 00.6 00.5 00.7  0040 0240 0050  0700 0710
43005 1                                                   0170 0050 0090 01.4 00.2 01.3  0090 0360 0090  0700 0770
43005 2                                                   0080 0040 0080 01.1 00.2 01.1  0060 0270 0060  0790 0850
43005 3                                                   0080 0040 0080 01.2 00.2 01.2                  0800 0870
43005 4                                                   0090 0030 0060 00.9 00.1 00.9  0100 0240 0100  0830 0890

43006 0  0065 0025 0085 1 01.5 00.1 01.6 1 0900 0950 1   0100 0030 0090 00.5 00.1 00.1  0100 0170 0100  0900 0960
43006 1                                                   0170 0050 0100 00.9 00.2 01.4  0100 0180 0120  0780 0960
43006 2                                                   0080 0040 0070 00.6 00.1 00.9                  0960 1000
43006 3                                                   0140 0050 0110 01.3 00.1 01.9                  0890 1010
43006 4                                                   0120 0030 0120 01.2 00.1 01.7  0100 0160 0110  0880 0920

43007 0  0125 0070 0145 1 02.4 00.4 02.4 1 0750 0750 1   0200 0100 0120 00.7 00.5 00.9  0160 0720 0140  0660 0690
43007 1                                                   0130 0120 0100 00.6 01.2 00.5  0180 0800 0170  0740 0790
43007 2                                                   0170 0060 0190 05.3 00.5 06.1                  0850 0870
43007 3                                                   0220 0090 0230 06.4 00.4 06.7                  0740 0830
43007 4                                                   0190 0080 0220 06.3 00.6 07.2  0140 0740 0150  0900 0910

43008 0  0090 0050 0160 1 01.3 00.6 01.1 1 1000 1000 1   0090 0030 0080 01.3 00.5 01.1  0080 0200 0060  0910 0920
43008 1                                                   0170 0070 0120 01.4 00.8 01.5  0060 0200 0070  0800 0960
43008 2                                                   0060 0040 0050 00.2 00.5 00.2                  0980 1010
43008 3                                                   0240 0060 0220 00.5 00.5 00.4                  1030 1020
43008 4                                                   0080 0030 0060 00.3 00.5 00.3  0060 0110 0060  1000 1010
```

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND PASS

```
      S  ---------D E Q     I D L E    T E S T---------   -------------H T S    I D L E    T E S T--------------------
      E  ------HC-------- -------CO-------- ----RPM----   ------HC------ -------CO------ ------NOX----- ---RPM---
EPAVD Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND
43009 0  0140 0295 0375 1 01.8 00.6 02.1 1 0800 0800 1   0140 0360 0140 01.5 00.6 01.5 0100 0200 0100 0840 0880
43009 1                                                  0360 0120 0270 01.9 00.8 01.7 0100 0280 0120 0620 0700
43009 2                                                  0230 0080 0230 01.3 00.8 01.4                0690 0710
43009 3                                                  0150 0060 0130 01.6 00.9 01.7 0080 0185 0085 0760 0900
43009 4                                                  0120 0090 0120 01.9 01.1 02.1 0100 0220 0160 0980 1260

43010 0  0050 0085 0070 1 00.2 01.1 00.4 1 0800 0800 1   0180 0090 0290 00.1 00.5 00.2 0050 0450 0070 0600 0700
43010 1                                                  0380 0040 0080 00.3 00.3 00.2 0110 0520 0120 0670 0680
43010 2                                                  0320 0100 0260 04.5 01.2 03.6                0540 0560
43010 3                                                  0330 0070 0190 03.5 00.6 03.1                0630 0650
43010 4                                                  0240 0090 0250 04.3 00.5 03.9 0100 0400 0120 0660 0650

43011 0  0080 0120 0215 1 02.1 00.4 01.9 1 0800 0800 1   0110 0080 0120 01.2 00.6 02.0 0075 0100 0080 0690 0720
43011 1                                                  0390 0090 0090 02.0 00.5 02.4 0090 0120 0100 0770 0810
43011 2                                                  0100 0200 0100 02.1 00.4 02.3 0060 0110 0070 0760 0790
43011 3                                                  0100 0030 0120 02.1 00.1 01.8                0690 0700
43011 4                                                  0120 0030 0100 02.6 00.1 02.8 0080 0320 0090 0710 0710

43012 0  0195 0110 0250 1 02.8 01.2 02.9 1 0950 0950 1   0190 0120 0230 01.3 01.9 01.4 0100 0220 0100 0880 0890
43012 1                                                  0510 0160 0500 07.6 03.1 07.7 0080 0200 0060 0850 0910
43012 2                                                  0320 0140 0310 05.1 01.7 05.0 0110 0220 0100 0920 0950
43012 3                                                  0490 0170 0480 06.8 01.6 06.9                0850 0920
43012 4                                                  0320 0110 0390 04.5 01.0 06.0 0140 0420 0120 1150 0920

43013 0  0135 0160 0140 1 02.5 01.9 02.5 1 0800 0800 1   0320 0160 0310 02.8 01.1 02.8 0120 0360 0120 0760 0790
43013 1                                                  0280 0160 0270 02.6 00.8 02.6                0720 0740
43013 2                                                  0310 0150 0240 02.4 00.9 02.5 0110 0350 0130 0730 0870
43013 3                                                  0130 0100 0130 00.9 00.7 01.0 0140 0370 0140 0880 0920

43014 0  0030 0050 0035 1 01.7 02.7 00.8 1 1000 1000 1   0100 0060 0050 01.3 00.5 00.8 0060 0120 0060 0700 0810
43014 1                                                  0340 0330 0030 00.8 00.5 00.6 0080 0120 0080 1070 1140
43014 2                                                  2330 1990 2390 00.9 00.8 01.0                1040 1090
43014 3                                                  0060 0030 0050 01.6 00.6 01.2                0940 0920
43014 4                                                  0030 0020 0020 01.2 00.3 00.8 0050 0080 0060 0770 0820

43015 0  0065 0035 0060 1 00.9 00.4 00.8 1 0800 0800 1   0080 0020 0060 00.4 00.1 00.6 0060 0120 0080 0700 0790
43015 1                                                  0170 0030 0090 00.5 00.1 00.4 0100 0190 0100 0730 0800
43015 2                                                  0050 0020 0050 00.4 00.1 00.5 0060 0210 0070 0740 0800
43015 3                                                  0090 0030 0080 00.3 00.1 00.3                0690 0740

43016 0  0080 0150 0335 1 03.9 03.6 03.5 1 1000 1000 1   0370 0100 0310 04.3 00.5 04.8 0100 0340 0120 0850 0970
43016 1                                                  0560 0210 0460 07.1 02.4 07.9 0130 0220 0140 0960 1020
43016 2                                                  0460 0160 0350 07.6 02.0 07.4 0070 0150 0080 0960 1030
43016 3                                                  0440 0150 0250 05.2 02.5 04.6                1040 1090
43016 4                                                  0590 0270 0580 09.6 05.0 09.6 0160 0200 0140 1000 1020

43017 0  0055 0075 0175 1 01.3 00.9 01.1 1 1000 1050 1   0240 0060 0140 00.8 00.7 00.9 0090 0200 0120 0870 0970
43017 1                                                  0150 0060 0060 00.7 02.2 01.0 0160 0290 0170 0950 1040
43017 2                                                  0100 0120 0120 00.6 05.0 01.0                0900 0980
43017 3                                                  0380 0090 0060 01.4 03.0 01.1 0100 0200 0100 1080 1080
43017 4                                                  0380 0060 0100 00.7 01.4 00.8 0100 0300 0110 0930 0960

43018 0  0110 0200 0200 1 02.5 00.6 02.9 1 0800 0800 1   0200 0070 0210 02.3 00.5 03.2 0120 0670 0160 0740 0790
43018 1                                                  0390 0140 0440 07.8 00.3 08.3 0200 0840 0200 0800 0760
43018 2                                                  0430 0090 0460 07.5 00.3 08.2                0700 0730
43018 3                                                  0310 0170 0340 06.5 00.2 07.3 0120 0720 0140 0820 0800
43018 4                                                  0290 0050 0310 06.1 00.3 06.4 0110 0580 0090 0780 0790

43019 0  0070 0035 0085 1 00.9 00.1 01.0 1 0800 0850 1   0220 0110 0160 01.8 00.9 01.9 0180 0910 0190 0790 0820

43020 0  0245 0120 0365 1 04.0 01.4 02.8 1 0900 0900 1   0270 0080 0280 04.9 00.6 04.9 0170 0290 0150 0860 0920
43020 1                                                  0330 0130 0270 04.5 01.5 05.3 0110 0280 0120 0860 0890
43020 2                                                  0540 0060 0250 02.0 00.2 04.1                0850 0880
43020 3                                                  0380 0090 0290 04.3 00.5 04.9 0160 0380 0180 0820 0850
43020 4                                                  0300 0060 0250 02.0 00.4 04.2 0080 0310 0110 0990 1000

43021 0  0195 0175 0215 1 00.8 00.7 00.8 1 0800 0800 1   0260 0130 0240 00.5 00.6 00.6 0130 0450 0090 0650 0730
43021 1                                                  0250 0180 0230 00.3 00.5 00.3 0120 0520 0120 0730 0770
43021 2                                                  0310 0140 0250 00.6 00.4 00.5 0090 0400 0100 0710 0710
43021 3                                                  0310 0200 0270 04.6 02.5 04.0 0120 0300 0120 0430 0960

43022 0  0040 0025 0055 1 01.1 00.3 00.9 1 0800 0800 1   0060 0030 0060 01.3 00.6 01.2 0060 0180 0060 0730 0780
43022 1                                                  0080 0030 0060 00.6 00.9 00.3 0040 0080 0040 0660 0650
43022 2                                                  0080 0020 0060 01.5 00.5 01.2                0700 0730
43022 3                                                  0090 0060 0080 00.6 01.5 01.5 0050 0090 0060 0880 0910
43022 4                                                  0050 0020 0050 01.8 01.1 01.5 0070 0100 0080 0840 0860

43023 0  0055 0085 0080 1 00.7 00.3 00.7 1 0800 0800 1   0090 0040 0070 00.6 00.2 00.7 0060 0140 0070 0750 0780
43023 1                                                  0140 0090 0100 00.6 00.1 00.6 0070 0140 0070 0750 0760
43023 2                                                  0100 0030 0090 01.0 00.2 00.8                0700 0750
43023 3                                                  0130 0070 0090 00.6 00.2 00.6 0050 0130 0060 0710 0780
43023 4                                                  0090 0050 0060 00.8 00.2 00.8 0080 0120 0090 0880 0890

43024 0  0050 0040 0105 1 00.1 00.3 00.1 1 0850 0850 1   0150 0040 0080 00.2 00.3 00.2 0090 0120 0060 0750 0800

43025 0  0065 0060 0115 1 01.9 01.7 01.7 1 1000 1000 1   0120 0080 0100 01.2 01.2 01.4 0150 0280 0160 0950 1010
43025 1                                                  0380 0050 0070 00.2 00.9 00.2                0710 0750
43025 2                                                  0220 0090 0130 00.3 01.2 00.2                0650 0660
43025 3                                                  0090 0030 0060 00.2 00.6 00.2 0070 0130 0080 0740 0800
43025 4                                                  0110 0050 0090 00.2 00.6 00.2 0080 0240 0080 0700 0760

43026 0  0035 0035 0060 1 00.1 00.1 00.1 1 1000 1000 1   0060 0030 0060 00.3 00.2 00.3 0060 0110 0080 0900 0950
43026 1                                                  0100 0030 0160 00.5 00.2 00.4 0050 0100 0050 0820 0820
43026 2                                                  0220 0060 0130 01.5 00.3 01.1                0710 0760
43026 3                                                  0280 0050 0060 00.9 00.2 00.4 0070 0160 0080 0780 0860
43026 4                                                  0370 0040 0060 00.6 00.3 00.4 0060 0770 0060 0790 0850

43027 0  0055 0025 0120 1 00.1 00.1 00.1 1 0900 0900 1   0110 0050 0060 00.1 00.1 00.1 0060 0100 0075 0780 0800
43027 1                                                  0650 0080 0090 00.3 00.1 00.1 0060 0110 0050 0680 0740
43027 2                                                  0500 0060 0140 00.1 00.1 00.1                0670 0750

43029 0  0190 0040 0160 1 00.5 00.1 00.3 1 0650 0650 1   0160 0080 0240 00.1 00.7 00.2 0070 1700 0080 0460 0450
43029 1                                                  0120 0050 0150 00.2 00.3 00.2                0580 0580
43029 2                                                  0900 0050 0120 00.1 00.2 00.2 0120 1050 0120 0620 0620
43029 3                                                  0100 0060 0100 00.1 00.2 00.1 0150 1300 0160 0560 0600
```

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                                    APPENDIX B - IDLE TEST RESULTS

                                       1972 - 7+  PORTLAND  PASS

       S   ---------D E Q    I D L E    T E S T----------     -------------H T S    I D L E     T E S T----------------
       E   ---------HC-------  ---------CO-------  ----RPM---     ------HC-------  ------CO-------  ------NOX-----   --RPM---
EPANO  Q   1ST 2500  2ND S  1ST 2500  2ND S  1ST  2ND S     1ST 2500  2ND  1ST 2500  2ND  1ST 2500  2ND  1ST  2ND

43030  0   0035 0030 0065 1 01.0 00.4 00.9 1 0800 0800 1    0100 0050 0090 00.7 00.1 00.6 0040 0090 0040 0710 0780
43030  1                                                    0120 0080 0090 01.1 00.3 00.8 0090 0140 0090 0750 0860
43030  2                                                    0050 0020 0030 00.7 00.2 00.5 0060 0090 0060 0780 0820

43031  0   0035 0050 0045 1 00.6 00.0 00.7 1 0850 0850 1    0100 0040 0060 00.9 00.1 00.7 0080 0140 0100 0730 0850
43031  1                                                    0070 0030 0040 01.0 00.1 00.8 0070 0100 0080 0830 0860
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                                   APPENDIX B - IDLE TEST RESULTS
                                     1975 - 77  PORTLAND  PASS
      S  --------D E Q   I D L E   T E S T----------  ------------H T S   I D L E   T E S T------------------
      E  --------HC-------- --------CO------- ---RPM---  ------HC------ ------CO------  -----NOX------  --RPM---
EPANO Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S  1ST  2500 2ND  1ST  2500 2ND   1ST  2500 2ND   1ST  2ND
54004 0  0110 0035 0110 1 00.1 00.1 00.1 1 0750 0750 1  0190 0050 0110 00.0 00.1 00.0                  0610 0620
54004 1                                                 0130 0040 0140 00.1 00.1 00.1  0090 0220 0100  0670 0690
54004 2                                                 0170 0050 0120 00.5 00.5 00.2  0090 0150 0100  0660 0700
54004 3                                                 0230 0060 0160 00.3 00.5 00.2                  0650 0640
54004 4                                                 0170 0040 0100 00.7 00.1 00.6  0070 0200 0080  0600 0610

54005 0  0085 0015 0065 1 00.0 00.0 00.0 1 1050 1050 1  0130 0020 0070 00.0 00.0 00.0                  1050 1050
54005 1                                                 0170 0010 0130 00.0 00.0 00.0  0060 0200 0080  0870 0930
54005 2                                                 0440 0020 0210 00.0 00.0 00.0  0090 0250 0080  0820 0900
54005 3                                                 0250 0020 0130 00.0 00.0 00.0                  0880 0920
54005 4                                                 0090 0020 0070 00.0 00.0 00.0  0080 0330 0100  0790 0830

54006 0  0075 0025 0120 1 00.0 00.0 00.0 1 0700 0700 1  0140 0000 0120 00.0 00.0 00.0                  0700 0700
54006 1                                                 0120 0080 0230 00.0 00.3 00.0  0050 0420 0060  0670 0690
54006 2                                                 0090 0030 0050 00.0 00.0 00.0                  0730 0800
54006 3                                                 0030 0020 0030 00.0 00.0 00.0                  0830 0850
54006 4                                                 0060 0030 0050 00.0 00.0 00.0  0060 0490 0070  0840 0890

54007 0  0045 0040 0045 1 00.0 00.0 00.5 1 0850 0900 1  0040 0020 0040 00.0 00.0 00.0                  0860 0860
54007 1                                                 0040 0020 0030 00.0 00.0 00.0  0060 0130 0060  0850 0970
54007 2                                                 0110 0040 0100 00.1 00.0 00.0  0080 0130 0050  0800 0830
54007 3                                                 0070 0030 0090 00.0 00.0 00.0                  0870 0880
54007 4                                                 0030 0020 0020 00.0 00.0 00.0  0080 0260 0080  0830 0840

54008 0  0070 0040 0080 1 00.1 00.1 00.1 1 0750 0750 1  0020 0020 0050 00.0 00.0 00.0                  0650 0750
54008 1                                                 0050 0030 0020 00.0 00.0 00.0  0060 0130 0060  0850 0850
54008 2                                                 0030 0020 0040 00.0 00.0 00.0  0030 0080 0040  0770 0770
54008 3                                                 0150 0030 0040 00.0 00.0 00.0                  0730 0780
54008 4                                                 0160 0050 0060 00.0 00.0 00.0  0060 0280 0070  0720 0760

54009 0  0020 0010 0020 1 00.0 00.0 00.0 1 1000 0950 1  0020 0010 0010 00.0 00.0 00.0                  0500 0650
54009 1                                                 0030 0010 0020 00.0 00.0 00.0  0060 0220 0080  0850 0880

54010 0  0020 0020 0025 1 00.0 00.0 00.0 1 0850 0850 1  0030 0010 0020 00.0 00.0 00.0                  0730 0820
54010 1                                                 0080 0080 0030 00.4 00.0 00.0  0080 0470 0060  0780 0850
54010 2                                                 0030 0020 0020 00.0 00.0 00.0                  0810 0850
54010 3                                                 0040 0020 0030 00.0 00.0 00.0                  0680 0730
54010 4                                                 0550 0760 0600 00.0 00.1 00.0  0070 0320 0090  0800 0820

54011 0  0100 0215 0125 1 00.0 00.0 00.0 1 0750 0750 1  0060 0070 0090 00.0 00.0 00.0                  0610 0710
54011 1                                                 0050 0020 0030 00.0 00.0 00.0  0060 0180 0080  0600 0630
54011 2                                                 0190 0090 0130 00.0 00.0 00.0  0050 0120 0050  0550 0620
54011 3                                                 0300 0180 0210 00.0 00.0 00.0                  0590 0660
54011 4                                                 0240 0070 0200 03.4 00.0 03.3  0080 0200 0100  0650 0700

54012 0  0045 0025 0035 1 00.0 00.0 00.0 1 0750 0750 1  0210 0020 0160 00.0 00.0 00.0  0060 0300 0100  0760 0780
54012 1                                                 0130 0020 0060 00.0 00.0 00.0  0060 0210 0070  0770 0750
54012 2                                                 0060 0020 0050 00.0 00.0 00.0                  0730 0750
54012 3                                                 0300 0090 0240 00.2 00.9 00.1                  0720 0760
54012 4                                                 0170 0050 0130 00.0 00.0 00.0  0060 0290 0160  0740 0790

54013 0  0020 0030 0020 1 00.0 00.0 00.0 1 0800 0800 1  0070 0060 0070 00.0 00.0 00.0  0040 0100 0040  0780 0810
54013 1                                                 0050 0050 0040 00.0 00.0 00.0  0050 0110 0040  0760 0800
54013 2                                                 0030 0020 0030 00.0 00.0 00.0                  0810 0840

54014 0  0025 0040 0040 1 00.0 00.0 00.0 1 0650 0650 1  0060 0030 0030 00.0 00.0 00.0  0070 0240 0080  0640 0650
54014 1                                                 0030 0040 0060 00.1 00.0 00.0  0020 0050 0040  0630 0660
54014 2                                                 0090 0020 0080 02.0 00.0 01.7                  0870 0890
54014 3                                                 0080 0040 0080 00.2 00.1 01.4                  0760 0900
54014 4                                                 0230 0080 0230 06.6 00.1 07.1  0110 0280 0120  0700 0700

54015 0  0170 0050 0170 1 01.1 00.1 01.0 1 0700 0700 1  0180 0050 0120 00.7 00.2 00.7  0060 0200 0040  0600 0750
54015 1                                                 0190 0050 0180 00.9 00.1 01.0  0080 0550 0060  0700 0750
54015 2                                                 0070 0020 0060 00.6 00.1 00.4  0040 0300 0060  0870 0870
54015 3                                                 0100 0040 0080 01.1 00.1 01.0                  0850 0880
54015 4                                                 0360 0040 0460 06.6 00.1 07.2  0110 0560 0120  0800 0800

54016 0  0110 0040 0170 1 00.1 00.1 00.1 1 0700 0700 1  0130 0020 0110 00.4 00.1 00.1  0060 0080 0060  0620 0720
54016 1                                                 0280 0030 0190 00.2 00.0 00.2  0050 0240 0050  0750 0720
54016 2                                                 0150 0020 0120 00.5 00.1 00.2  0030 0180 0000  0700 0700
54016 3                                                 0240 0030 0350 00.1 00.0 00.1                  0700 0700
54016 4                                                 0090 0020 0080 00.7 00.2 00.3  0060 0220 0070  0740 0740

54017 0  0090 0030 0160 1 00.2 00.2 00.2 1 0900 0900 1  0150 0040 0120 00.2 00.3 00.2  0060 0100 0040  0700 0770
54017 1                                                 0170 0020 0130 00.4 00.5 00.4  0050 0100 0050  0720 0790
54017 2                                                 0140 0050 0180 00.2 00.3 00.2  0020 0060 0020  0700 0740
54017 3                                                 0120 0030 0120 02.9 00.4 02.4                  0620 0620
54017 4                                                 0090 0040 0080 01.6 00.4 01.3  0060 0100 0060  0860 0900

54018 0  0110 0045 0085 1 02.8 00.1 00.7 1 0900 0900 1  0160 0050 0060 00.4 00.0 00.0  0160 0120 0100  0760 0770
54018 1                                                 0050 0040 0060 00.0 00.0 00.0  0120 0240 0090  0770 0720
54018 2                                                 0250 0140 0080 00.0 00.0 00.0                  0660 0640
54018 3                                                 0130 0050 0140 03.6 00.0 04.2  0120 0140 0100  0880 0850
54018 4                                                 0040 0020 0030 00.0 00.0 00.0  0080 0180 0140  0720 0760

54019 0  0070 0085 0105 1 01.2 00.6 01.2 1 1050 1050 1  0090 0030 0080 01.1 00.2 01.0  0060 0220 0070  0890 0990
54019 1                                                 0070 0050 0080 01.0 00.2 01.0  0080 0300 0090  0920 0930
54019 2                                                 0170 0080 0160 01.3 00.2 01.4                  0620 0660
54019 3                                                 0130 0060 0100 01.6 00.4 01.4  0060 0180 0070  0740 0760
54019 4                                                 0130 0040 0060 01.5 00.5 01.2  0070 0200 0080  0790 0870

54020 0  0045 0040 0060 1 00.3 00.2 00.7 1 1100 1100 1  0100 0050 0080 00.3 00.3 00.4  0080 0240 0090  1000 1100
54020 1                                                 0030 0040 0070 00.2 00.2 00.2  0090 0240 0100  1080 1130
54020 2                                                 0080 0050 0060 00.5 00.2 00.5  0050 0160 0050  1180 1290

54021 0  0065 0035 0095 1 00.1 00.1 00.1 1 0700 0700 1  0070 0010 0060 00.1 00.1 00.3  0130 0130 0160  0770 0830
54021 1                                                 0050 0030 0070 00.1 00.1 00.2  0160 0370 0190  0810 0830
54021 2                                                 0200 0080 0210 04.8 00.6 06.2                  0900 0930
54021 3                                                 0080 0040 0100 00.7 00.4 00.9                  0740 0750
54021 4                                                 0130 0050 0150 00.9 00.2 02.5  0120 0860 0140  0740 0780

54022 0  0035 0050 0070 1 00.0 00.1 00.0 1 0900 0900 1  0090 0020 0060 00.0 00.2 00.1  0110 0160 0120  0870 0930
54022 1                                                 0050 0030 0090 00.1 00.1 00.1  0050 0110 0050  0880 0820
54022 2                                                 0010 0030 0010 00.0 00.1 00.0                  0790 0790
54022 3                                                 0050 0050 0080 00.0 00.1 00.0  0040 0090 0040  0790 0780
54022 4                                                 0060 0030 0070 00.1 00.1 00.1  0060 0100 0080  0740 0790
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                                APPENDIX B - IDLE TEST RESULTS
                                   1975 - 77  PORTLAND  PASS
      S  ---------D E Q     I D L E    T E S T---------     -----------H T S    I D L E      T E S T--------------
      E  ------HC------   --------CO-------  ----RPM---     ------HC-------  ------CO------  -----NOX-----  --RPM---
EPANO Q  1ST 2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND
54023 0  0124 0040 0110 1 01.6 00.2 01.3 1 0800 0800 1   0140 0040 0160 01.0 00.3 01.1 0040 0120 0040 0730 0740
54023 1                                                  0120 0040 0100 01.2 00.3 01.1 0030 0060 0030 0790 0810
54023 2                                                  0180 0050 0120 00.9 00.3 00.8                0780 0820
54023 3                                                  0200 0100 0130 01.2 00.3 00.8                0830 0910

54024 0  0095 0010 0115 1 00.8 00.1 01.0 1 0700 0700 1   0070 0060 0060 00.4 01.2 00.0 0120 0280 0120 0660 0660
54024 1                                                  0050 0030 0030 00.0 00.0 00.0 0160 0280 0160 0660 0650
54024 2                                                  0060 0030 0050 00.0 00.0 00.0                0660 0670

54025 0  0025 0035 0030 1 00.0 00.0 00.0 1 0800 0800 1   0080 0090 0050 00.2 00.4 00.0 0220 1600 0220 0700 0720
54025 1                                                  0250 0160 0260 07.5 00.1 08.1 0160 0820 0170 0710 0720
54025 2                                                  0230 0090 0200 07.1 01.1 05.8                0770 0820
54025 3                                                  0260 0120 0530 05.7 00.1 10.0 0200 0960 0110 0940 0490
54025 4                                                  2800 2000 2760 03.8 00.1 03.9 0140 1600 0340 0780 0780

54026 0  0090 0060 0160 1 00.2 00.2 00.2 1 1000 1000 1   0250 0120 0230 00.3 00.4 00.3 0120 0180 0120 0870 0890
54026 1                                                  0250 0060 0200 00.7 00.3 00.4 0200 0220 0180 0840 0900
54026 2                                                  0500 0080 0590 00.4 00.5 00.4                0880 0850
54026 3                                                  0790 0110 0580 00.4 00.4 00.4                0900 0880
54026 4                                                  0300 0110 0340 00.4 00.3 00.3 0120 0220 0100 0900 0900

54027 0  0065 0075 0075 1 01.0 00.1 01.1 1 0900 0900 1   0090 0030 0050 00.8 00.1 01.2 0040 0080 0050 0790 0860
54027 1                                                  0070 0040 0060 01.6 00.1 01.6 0070 0140 0070 0800 0840
54027 2                                                  0020 0050 0020 00.0 00.1 00.0                0780 0780
54027 3                                                  0080 0060 0080 01.2 00.1 01.4 0050 0080 0050 0770 0810
54027 4                                                  0050 0020 0060 01.5 00.1 01.5 0040 0070 0060 0730 0770

54028 0  0105 0060 0130 1 00.1 00.1 00.1 1 1100 1100 1   0250 0060 0130 00.2 00.2 00.2 0120 0300 0160 0790 0930
54028 1                                                  0080 0060 0090 02.1 01.8 02.0 0140 0300 0140 0690 0680
54028 2                                                  0120 0100 0120 04.1 03.0 04.7                0750 0800
54028 3                                                  0080 0080 0090 04.2 02.4 04.4 0140 0200 0135 0790 0820

54029 0  0030 0035 0075 1 00.5 00.1 00.4 1 1100 1100 1   0060 0020 0060 00.8 00.0 00.4 0070 0380 0060 0830 0960
54029 1                                                  0080 0040 0060 00.6 00.1 00.7 0140 0430 0140 0850 0820
54029 2                                                  0170 0040 0080 03.2 00.2 00.8                0660 0720
54029 3                                                  0170 0050 0080 03.4 00.1 00.8                0690 0740
54029 4                                                  0240 0040 0060 04.4 00.1 00.7 0120 0360 0080 0600 0710

54030 0  0045 0040 0110 1 01.0 00.7 01.1 1 1100 1100 1   0100 0040 0080 01.0 00.3 00.9 0060 0120 0060 0910 0960
54030 1                                                  0100 0040 0080 01.3 00.4 01.2 0050 0110 0050 0910 0950
54030 2                                                  0080 0020 0090 01.3 00.3 01.1                0930 0970
54030 3                                                  0080 0030 0050 00.2 00.3 00.3 0040 0090 0040 0830 0890
54030 4                                                  0090 0020 0090 00.6 00.3 00.5 0040 0070 0040 0810 0850

54031 0  0070 0075 0043 1 00.2 00.3 00.1 1 0950 0950 1   0090 0050 0090 00.3 00.1 00.2 0070 0300 0070 0810 0840
54031 1                                                  0140 0050 0100 00.2 00.1 00.2 0090 0310 0090 0760 0770
54031 2                                                  0130 0060 0100 00.2 00.1 00.1                0760 0810
54031 3                                                  0130 0050 0120 01.1 00.2 02.1 0060 0150 0070 0770 0720
54031 4                                                  0100 0050 0080 01.6 00.3 01.6 0060 0160 0060 0760 0840

54032 0  0020 0025 0065 1 00.0 00.0 00.0 1 0850 0850 1   0130 0060 0080 00.0 00.0 00.0 0090 0250 0060 0700 0700
54032 1                                                  0030 0010 0020 00.0 00.0 00.0 0110 0420 0110 0780 0800
54032 2                                                  0020 0030 0030 00.0 00.3 00.0                0780 0800
54032 3                                                  0020 0040 0030 00.0 00.5 00.0                0820 0840
54032 4                                                  0150 0080 0080 00.0 00.1 00.0 0040 0160 0040 0800 0820

54033 0  0075 0060 0160 1 00.1 00.2 00.2 1 1100 1100 1   0090 0030 0100 00.2 00.2 00.3 0280 0310 0270 0970 1170
54033 1                                                  0140 0050 0060 00.2 00.2 00.3 0130 0220 0180 0960 1060
54033 2                                                  0210 0040 0170 00.2 00.3 00.2                1010 1080
54033 3                                                  0140 0050 0080 00.2 00.3 00.2 0080 0140 0080 0910 1080
54033 4                                                  0170 0050 0180 00.2 00.3 00.2 0090 0180 0080 0930 0970

54034 0  0055 0030 0090 1 00.8 00.3 00.7 1 1100 1100 1   0090 0030 0090 00.8 00.3 00.7 0060 0090 0060 1120 1120
54034 1                                                  0080 0030 0060 00.6 00.3 00.6                1120 1130
54034 2                                                  0060 0030 0060 00.6 00.5 00.7                1150 1120
54034 3                                                  0130 0040 0120 01.2 00.3 01.5 0050 0080 0060 1040 1040
54034 4                                                  0120 0040 0120 01.1 00.5 01.1 0080 0120 0080 1120 1180

54035 0  0025 0050 0040 1 00.0 02.1 00.0 1 0750 0750 1   0050 0030 0030 00.0 01.6 00.0 0090 0170 0100 0710 0750
54035 1                                                  0100 0050 0060 00.0 01.3 00.0 0080 0140 0090 0890 0980
54035 2                                                  0130 0030 0070 00.0 00.3 00.0                0900 0950
54035 3                                                  0040 0040 0030 00.0 01.2 00.0 0100 0180 0100 0950 1000
54035 4                                                  0160 0030 0160 00.0 00.3 00.0 0080 0120 0060 0680 0690

54036 0  0035 0035 0060 1 00.9 00.1 00.8 1 1000 1000 1   0060 0030 0050 01.1 00.2 00.9 0070 0140 0080 0870 0970
54036 1                                                  0050 0020 0050 01.2 00.1 00.9                0810 0920
54036 2                                                  0050 0020 0060 01.0 00.3 00.8                0800 0840
54036 3                                                  0080 0050 0050 00.8 00.1 00.6 0060 0120 0060 0830 0870
54036 4                                                  0040 0020 0030 01.0 00.2 00.7 0060 0100 0060 0820 0860

54037 0  0145 0050 0135 1 01.1 00.1 01.0 1 0900 0900 1   0090 0020 0070 00.9 00.1 00.8 0050 0200 0060 0790 0840
54037 1                                                  0070 0030 0080 01.1 00.3 00.9 0050 0100 0050 0780 0820
54037 2                                                  0090 0040 0090 01.0 00.2 00.8                0790 0830
54037 3                                                  0090 0200 0080 00.7 00.1 00.9 0050 0160 0050 0670 0790
54037 4                                                  0100 0030 0090 00.4 00.1 00.4 0050 0130 0060 0740 0790

54038 0  0040 0020 0060 1 01.3 00.3 01.3 1 1000 1000 1   0050 0020 0060 01.0 00.3 01.0 0055 0120 0060 0980 0950
54038 1                                                  0150 0050 0200 00.8 00.3 00.6                0730 0780
54038 2                                                  0170 0030 0160 00.6 00.2 00.6 0050 0100 0040 0710 0770
54038 3                                                  0160 0030 0200 00.6 00.2 00.5 0040 0100 0040 0670 0800

54039 0  0015 0020 0020 1 00.6 00.0 00.5 1 0900 0900 1   0050 0020 0030 01.0 00.0 00.7 0090 0260 0090 0800 0860
54039 1                                                  0070 0020 0030 01.7 00.3 00.9 0050 0140 0050 0720 0820
54039 2                                                  0050 0040 0050 00.9 00.2 00.8                0800 0830
54039 3                                                  0060 0050 0040 00.9 00.1 00.6 0080 0200 0080 0660 0940
54039 4                                                  0090 0050 0050 01.0 00.1 00.8 0070 0320 0070 0800 0830

54040 0  0045 0015 0045 1 00.8 00.6 00.8 1 1500 1500 1   0010 0010 0020 00.1 00.0 00.2 0040 0060 0040 1330 1320
54040 1                                                  0020 0020 0020 00.0 00.0 00.0 0030 0080 0020 0830 0970
54040 2                                                  0110 0040 0100 01.2 00.7 01.2                0880 1380
54040 3                                                  0050 0030 0040 01.2 00.7 01.2 0060 0090 0080 1500 1520
54040 4                                                  0090 0050 0070 01.2 00.7 01.3 0070 0100 0080 1530 1560
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APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND PASS

		DED IDLE TEST												HTS IDLE TEST										
		HC				CO				RPM				HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S		1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
54041	0	0030	0015	0040	1	00.7	00.4	00.7	1	0800	0800	1		0060	0030	0050	00.9	00.4	00.8	0070	0410	0080	0700	0730
54041	1													0060	0020	0050	00.9	00.4	00.7				0760	0800
54041	2													0060	0030	0050	01.0	00.5	00.8				0750	0800
54041	3													0040	0020	0030	00.8	00.3	00.6	0070	0260	0080	0800	0850
54041	4													0060	0020	0030	01.1	00.3	00.8	0070	0180	0080	0760	0830
54042	0	0020	0035	0040	1	00.0	00.0	00.0	1	1000	1000	1		0060	0020	0030	00.4	00.0	00.0	0080	0180	0090	0980	1000
54042	1													0050	0020	0040	00.0	00.0	00.0				0900	0910
54042	2													0130	0050	0040	02.0	00.2	00.0	0060	0110	0080	0710	0920
54042	3													0030	0020	0030	00.0	00.0	00.0	0020	0240	0080	0800	0820
54042	4													0040	0010	0020	00.0	00.3	00.0	0080	0140	0070	1050	1030
54043	0	0070	0070	0175	1	00.7	00.7	00.8	1	0750	0750	1		0070	0050	0080	00.6	00.3	00.5	0090	0200	0080	0820	0850
54043	1													0100	0040	0080	01.7	00.2	00.9	0070	0210	0070	0920	0840
54043	2													0060	0030	0070	01.4	00.2	01.0	0070	0060	0080	1000	0850
54043	3													0100	0030	0090	01.6	00.5	01.1	0070	0110	0080	0780	0850
54043	4													0090	0050	0100	01.5	00.3	01.4	0100	0290	0110	0830	0840
54044	0	0100	0260	0110	1	03.0	01.2	02.9	1	0700	0700	1		0060	0030	0050	00.9	00.3	01.1	0150	0280	0160	0990	1080
54044	1													0160	0110	0120	02.0	01.4	02.4	0180	0340	0160	0940	0920
54044	2													0320	0060	0270	00.3	00.1	00.3	0100	0230	0100	0720	0740
54044	3													0230	0060	0190	00.2	00.5	00.2	0080	0410	0080	0880	0910
54044	4													0170	0040	0130	00.2	00.2	00.1	0080	0240	0080	0920	0930
64002	0	0030	0020	0045	1	01.0	00.4	00.9	1	1100	1100	1		0060	0020	0030	01.1	00.4	00.9				0980	1050
64002	1													0120	0030	0080	01.4	00.4	01.2	0070	0110	0060	0750	0860
64002	2													0120	0030	0090	00.9	00.6	00.9				0850	0890
64002	3													0050	0020	0050	00.8	00.3	00.7				0910	0900
64002	4													0060	0020	0050	00.6	00.4	00.6	0050	0110	0060	0840	0860
64003	0	0070	0060	0070	1	00.0	00.0	00.0	1	0600	0600	1		0140	0050	0100	00.0	00.0	00.0	0090	0200	0100	0840	0510
64003	1													0280	0080	0170	00.0	00.0	00.0	0060	0170	0100	0580	0550
64003	2													0170	0030	0170	00.0	00.0	00.0				0650	0660
64003	3													0110	0050	0150	00.0	00.0	00.0				0600	0620
64003	4													0190	0040	0120	00.0	00.0	00.0	0090	0150	0080	0790	0670
64004	0	0090	0115	0110	1	00.2	01.6	00.1	1	0800	0800	1		0050	0030	0050	00.1	00.4	00.1	0120	0500	0150	0740	0760
64004	1													0390	0050	0090	00.2	02.0	00.7	0100	0460	0120	0800	0360
64004	2													0050	0020	0050	00.2	00.5	00.2				0830	0820
64004	3													0070	0030	0060	00.2	00.2	00.2				0800	0820
64004	4													0590	0060	0230	00.1	00.3	00.2	0110	0280	0140	0770	0790
64005	0	0045	0035	0045	1	00.0	00.0	00.0	1	0650	0650	1		0060	0040	0050	00.0	00.0	00.0	0140	0100	0140	0680	0690
64005	1													0060	0020	0050	00.1	00.0	00.0	0140	0120	0090	0800	0840
64005	2													0060	0050	0050	00.0	00.0	00.0	0080	0120	0080	0800	0860
64005	3													0090	0160	0060	00.0	00.1	00.0				0800	0850
64005	4													0090	0030	0040	00.3	00.0	00.0	0130	0120	0170	0830	0700
64006	0	0505	0125	0105	1	00.1	00.1	00.0	1	0750	0775	1		0510	0140	0100	00.2	00.0	00.0	0060	0180	0080	0750	0760
64006	1													0210	0120	0120	00.0	00.0	00.0	0090	0180	0100	0730	0780
64006	2													0260	0080	0170	00.4	00.6	00.5	0080	0360	0100	0890	0950
64006	3													0230	0100	0110	00.3	00.3	00.1				0820	0910
64006	4													0090	0050	0060	00.2	00.0	00.0	0120	0240	0140	0880	0980
64007	0	0060	0045	0085	1	00.2	00.1	00.2	1	0850	0900	1		0120	0100	0090	00.1	00.1	00.1	0080	0120	0090	0830	0880
64007	1													0120	0120	0140	00.1	00.1	00.1	0070	0180	0090	0810	0850
64007	2													0160	0300	0170	00.1	00.1	00.1				0820	0860
64007	3													0300	0210	0180	00.1	00.1	00.1				0780	0860
64007	4													0240	0220	0150	00.1	00.1	00.3	0090	0260	0100	0820	0880
64008	0	0015	0025	0015	1	00.0	00.0	00.0	1	0800	0850	1		0030	0010	0010	00.0	00.0	00.0	0075	0160	0075	0770	0800
64008	1													0020	0020	0010	00.0	00.0	00.0	0040	0220	0050	0870	0920
64008	2													0010	0010	0010	00.0	00.0	00.0				0870	0930
64008	3													0280	0070	0080	00.0	00.0	00.0				0830	0860
64008	4													0530	0650	0350	00.0	00.0	00.0	0070	0140	0070	1290	1220
64009	0	0795	0845	0165	1	00.4	00.2	00.0	1	0850	0850	1		0340	0440	0140	00.0	00.0	00.0	0095	0220	0095	0700	0750
64009	1													0310	0110	0300	00.6	00.0	00.6	0140	0210	0140	0850	0870
64009	2													0860	0160	0530	00.8	00.5	00.2	0070	0140	0070	0720	0730
64009	3													0510	0200	0200	00.2	00.2	00.1				0660	0670
64009	4													0240	0100	0220	00.7	00.0	00.4	0110	0190	0100	0720	0730
64011	0	0020	0065	0030	1	00.0	00.1	00.0	1	0700	0700	1		0020	0010	0020	00.0	00.0	00.0	0080	0150	0090	0600	0660
64011	1													0030	0010	0020	00.0	00.0	00.0	0120	0240	0130	0630	0660
64011	2													0110	0030	0100	01.6	00.1	02.1				0710	0750
64011	3													0160	0070	0150	02.9	00.7	02.9				0750	0780
64011	4													0140	0050	0140	02.8	00.2	02.8	0120	0230	0130	0790	0820
64012	0	0040	0090	0045	1	00.0	00.0	00.0	1	1000	1100	1		0070	0040	0130	[illegible]	00.0	00.7	0010	0120	0040	0690	0710
64012	1													0050	0030	0030	00.0	00.0	00.0	0080	0180	0080	0760	0810
64012	2													0020	0010	0020	00.0	00.0	00.0	0050	0120	0060	0810	0870
64012	3													0040	0020	0030	00.0	00.0	00.0				0810	0960
64012	4													0080	0020	0020	00.0	00.0	00.0	0060	0150	0060	0750	0840
64013	0	0025	0025	0035	1	00.0	00.0	00.0	1	1000	1000	1		0060	0040	0060	00.0	00.0	00.0	0060	0320	0140	0700	1060
64013	1													0040	0020	0030	00.0	00.0	00.0	0175	0525	0180	1080	1060
64013	2													0030	0010	0020	00.0	00.0	00.0	0060	0240	0080	0730	1020
64013	3													0020	0010	0020	00.0	00.0	00.0				1060	1020
64013	4													0010	0010	0020	00.0	00.0	00.0	0130	0380	0120	1040	1040
64014	0	0035	0030	0055	1	00.0	00.0	00.0	1	1000	1000	1		0080	0060	0020	00.1	00.0	00.0	0040	0120	0040	0940	1040
64014	1													0080	0050	0030	00.2	00.1	00.2	0080	0110	0080	1260	1270
64015	0	0150	0025	0100	1	00.0	00.0	00.0	1	0750	0800	1		0170	0020	0100	00.0	00.0	00.0	0040	0160	0040	0700	0750
64015	1													0280	0030	0250	00.0	00.0	00.0	0060	0190	0070	0750	0860
64015	2													0280	0030	0120	00.0	00.0	00.0	0050	0140	0070	0650	0720
64015	3													0160	0040	0090	00.0	00.0	00.0				0620	0710
64016	0	0125	0060	0260	1	00.8	00.5	00.9	1	1000	1000	1		0140	0040	0130	00.4	00.2	00.4	0090	0120	0080	0900	0870
64016	1													0270	0070	0250	01.0	00.4	00.9	0140	0220	0120	1030	1020
64017	0	0070	0060	0080	1	00.5	00.2	00.5	1	1050	1050	1		0060	0050	0070	00.5	00.1	00.4	0080	0180	0080	1000	1040
64017	1													0120	0050	0080	00.2	00.1	00.2	0060	0220	0070	0720	0740
64017	2													0110	0060	0080	00.3	00.1	00.3	0020	0110	0030	0730	1130
64017	3													0130	0090	0140	00.7	00.3	00.5				0810	0860
64017	4													0100	0060	0110	00.4	00.1	00.3	0050	0160	0050	0850	0910

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND PASS

		D E Q	IDLE	TEST									H T S	IDLE	TEST								
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
64018	0	0165	0065	0095	1	00.7	00.0	00.3	1	0800	0800	1	0030	0020	0030	00.0	00.0	00.0	0100	0320	0040	0930	0770
64018	1												0150	0350	0150	00.2	00.1	00.1	0110	0620	0040	0830	0820
64018	2												0040	0020	0080	00.0	00.0	00.0	0110	0350	0100	1280	0820
64018	3												0140	0040	0110	00.0	00.0	00.0				0950	0980
64018	4												0070	0050	0060	00.0	00.0	00.0	0060	0700	0060	1270	1010
64019	0	0045	0075	0095	1	00.1	00.1	00.1	1	0800	0850	1	0060	0020	0060	00.5	00.1	00.4	0150	0200	0170	0840	0700
64019	1												0090	0020	0060	00.5	00.1	00.2	0180	0220	0120	0960	0690
64019	2												0130	0030	0080	00.2	00.1	00.7	0060	0090	0080	0620	0710
64019	3												0160	0030	0140	00.2	00.1	00.3				0610	0680
64019	4												0130	0040	0090	00.4	00.0	00.9	0110	0170	0140	0650	0700
64020	0	0035	0115	0050	1	00.0	00.0	00.0	1	1000	1000	1	0060	0130	0060	00.0	00.0	00.0	0120	0220	0120	1110	1160
64020	1												0120	0140	0150	00.0	00.1	00.0	0140	0260	0150	0960	0950
64020	2												0130	0140	0170	00.0	00.1	00.0				0850	0900
64020	3												0160	0140	0160	00.0	00.5	00.0				0970	0980
64020	4												0130	0200	0150	00.0	00.1	00.0	0070	0160	0070	0930	0960
64021	0	0040	0015	0035	1	00.1	00.3	00.1	1	1050	1050	1	0060	0020	0060	00.2	00.3	00.2	0060	0080	0070	1010	1000
64021	1												0100	0030	0090	00.2	00.7	00.2	0050	0080	0040	0970	1010
64021	2												0130	0030	0130	01.8	00.4	01.6				0940	0950
64021	3												0100	0040	0100	01.2	00.4	01.2	0060	0100	0070	0940	0970
64021	4												0110	0040	0120	01.2	00.6	01.4	0050	0080	0040	0960	0980
64022	0	0240	0075	0120	1	01.7	00.1	00.0	1	0800	0800	1	0200	0050	0100	00.5	00.0	00.0	0080	0420	0080	0810	0840
64022	1												0190	0040	0160	00.0	00.0	00.0	0110	0520	0080	0640	0660
64022	2												0180	0050	0070	00.1	00.0	00.0				0800	0920
64022	3												0230	0050	0160	00.1	00.0	00.0	0080	0250	0080	0910	0980
64022	4												0200	0040	0070	00.2	00.0	00.0	0120	0560	0110	0880	1020
64023	0	0085	0040	0085	1	00.0	00.0	00.0	1	1200	1150	1	0120	0020	0100	00.0	00.0	00.0	0020	0140	0010	0630	0690
64023	1												0780	0100	0540	00.0	00.0	00.0	0060	0150	0060	0640	0680
64023	2												0790	0070	0780	00.1	00.6	00.1	0040	0140	0050	0730	0730
64023	3												0450	0060	0400	00.2	00.0	00.2				0750	0770
64023	4												0150	0030	0120	00.0	00.0	00.0	0050	0160	0060	0730	0740
64024	0	0305	0110	0070	1	04.8	00.5	00.0	1	0900	0900	1	0100	0030	0050	00.0	00.0	00.0	0120	0160	0160	0980	1000
64024	1												0550	0090	0060	05.3	00.0	00.0	0130	0170	0130	0780	0920
64024	2												0200	0080	0120	05.6	00.0	00.0				0860	0930
64024	3												0100	0070	0090	00.0	00.0	00.0				0860	0920
64024	4												0250	0120	0120	00.0	00.0	00.0	0080	0160	0100	0790	0800
64025	0	0120	0220	0120	1	00.0	00.0	00.0	1	0700	0700	1	0160	0160	0100	00.0	00.0	00.0	0090	0140	0040	0750	0730
64025	1												0130	0120	0080	00.0	00.0	00.0				0830	0680
64025	2												0220	0200	0160	00.0	00.0	00.0				0680	0680
64025	3												0140	0190	0120	00.0	00.0	00.0	0060	0160	0070	0690	0660
64025	4												0240	0160	0110	00.0	00.0	00.0	0060	0100	0080	0660	0660
64026	0	0035	0025	0075	1	01.1	00.3	01.1	1	0800	0800	1	0090	0030	0070	01.5	00.4	01.0	0060	0100	0050	0790	0900
64026	1												0140	0050	0120	01.1	00.3	00.7	0060	0090	0050	0780	0870
64026	2												0140	0030	0100	01.2	00.3	01.0				0750	0790
64026	3												0130	0030	0120	01.0	00.3	00.7				0780	0840
64026	4												0150	0050	0110	01.1	00.3	00.6	0040	0100	0040	0790	0850
64027	0	0050	0060	0065	1	00.1	00.1	00.1	1	0900	0900	1	0080	0030	0130	00.1	00.1	00.1	0040	0100	0040	0910	0910
64027	1												0050	0020	0070	00.1	00.1	00.1	0070	0120	0050	1010	0970
64027	2												0060	0020	0080	00.1	00.0	00.1				0940	0900
64027	3												0050	0030	0140	00.1	00.1	00.1				1080	0910
64027	4												0020	0010	0020	00.2	00.1	00.2	0060	0100	0050	1210	1150
64028	0	0060	0045	0090	1	00.6	00.1	00.6	1	1000	1000	1	0100	0060	0100	00.3	00.1	00.3	0070	0180	0080	0860	0900
64028	1												0130	0050	0120	00.5	00.1	00.4	0080	0170	0070	0720	0810
64028	2												0170	0090	0140	00.4	00.3	00.3				0790	0840
64028	3												0130	0080	0120	00.5	00.1	00.5	0060	0200	0060	0790	0860
64028	4												0180	0080	0130	00.4	00.1	00.3	0060	0170	0070	0700	0850
64029	0	0060	0040	0070	1	00.0	00.0	00.0	1	0600	0600	1	0140	0200	0150	00.0	00.0	00.0	0060	0140	0070	1230	1290
64029	1												0030	0060	0020	00.0	00.0	00.0	0060	0160	0080	1080	1120
64029	2												0030	0020	0020	00.0	00.0	00.0				1110	1150
64029	3												0020	0020	0020	00.0	00.0	00.0				1020	1000
64029	4												0060	0120	0070	00.0	00.1	00.0	0060	0200	0070	1050	1070
64030	0	0080	0050	0125	1	01.1	00.3	00.9	1	0900	0900	1	0100	0030	0080	00.8	00.3	00.6	0040	0100	0040	0820	0960
64031	0	0030	0080	0050	1	00.0	00.0	00.0	1	1000	1000	1	0030	0020	0020	00.0	00.0	00.0	0080	0210	0140	0910	0930
64031	1												0040	0250	0030	00.0	00.0	00.0	0060	0110	0060	0990	1050
64031	2												0010	0020	0010	00.0	00.0	00.0	0030	0260	0030	1100	1130
64031	3												0050	0040	0030	00.0	00.0	00.0				1010	1080
64031	4												0060	0030	0050	00.0	00.0	00.0	0040	0140	0040	0700	0700
64032	0	0070	0025	0065	1	01.4	00.1	01.1	1	0800	1050	1	0140	0050	0080	01.7	00.3	00.9	0060	0140	0060	0690	1000
64032	1												0090	0040	0080	01.1	00.5	01.0	0070	0140	0080	0810	1000
64032	2												0140	0030	0100	01.8	00.4	01.0				0760	1010
64032	3												0130	0040	0080	01.7	00.3	00.9				0740	1020
64032	4												0050	0020	0030	00.8	00.4	00.5	0060	0100	0060	0840	1080
64033	0	0060	0035	0055	1	00.8	00.4	00.4	1	1000	1000	1	0050	0020	0040	00.7	00.4	00.6	0040	0060	0040	1100	1200
64034	0	0075	0055	0100	1	01.0	00.1	00.9	1	0950	0950	1	0100	0050	0090	01.4	00.3	01.2	0080	0300	0100	0870	0880
64034	1												0170	0080	0120	01.8	00.2	00.9	0080	0240	0080	0790	0910
64034	2												0160	0080	0120	01.7	00.2	01.2				0730	0880
64034	3												0170	0070	0130	02.0	00.1	01.4	0060	0240	0060	0710	0820
64034	4												0140	0060	0100	01.9	00.1	01.1	0070	0250	0070	0730	0830
64035	0	0010	0005	0005	1	00.0	00.0	00.0	1	1100	1100	1	0040	0020	0030	00.0	00.0	00.0	0060	0150	0070	1000	1020
64035	1												0020	0010	0020	00.0	00.0	00.0	0070	0150	0070	1080	1080
64035	2												0020	0030	0020	00.0	00.0	00.0				1200	1100
64035	3												0050	0010	0020	00.0	00.0	00.0				1010	1090
64035	4												0020	0010	0010	00.0	00.0	00.0	0060	0130	0060	0980	1010
64036	0	0220	0095	0230	1	00.4	00.0	00.8	1	0750	0750	1	0600	0100	0140	00.1	00.0	00.0	0080	0180	0080	0730	0790
64036	1												0570	0100	0080	00.1	00.0	00.0	0090	0160	0110	0710	0780
64036	2												0220	0040	0210	00.0	00.0	00.2				0810	0830
64036	3												0310	0060	0270	00.0	00.0	00.5	0070	0150	0090	0810	0910
64036	4												0170	0070	0270	00.0	00.0	00.0	0120	0160	0110	0750	0900

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND PASS

```
      S   ---------D E Q  I D L E    T E S T----------    -------------H T S   I D L E    T E S T-----------------------
      E   --------HC------ --------CO------ ----RPM---    ------HC-------  ------CO-------  -----NOX------  --RPM---
EPANO Q   1ST 2500 2ND S 1ST  2500 2ND S 1ST  2ND S       1ST  2500 2ND    1ST  2500 2ND    1ST  2500 2ND   1ST  2ND
64037 0  0055 0050 0050 1 00.3 00.1 00.3 1 1150 1150 1   0030 0010 0020  00.5 00.2 00.4  0040 0080 0040  1100 1040
64037 1                                                  0020 0010 0030  00.2 00.1 00.2  0070 0120 0060  1180 1000
64037 2                                                  0030 0010 0020  00.2 00.1 00.2                  1020 1020
64037 3                                                  0030 0020 0020  00.3 00.1 00.2  0040 0100 0040  1060 0980
64037 4                                                  0010 0010 0010  00.3 00.2 00.3  0030 0100 0040  1170 1080

64038 0  0135 0395 0080 1 02.2 00.1 00.1 1 0900 0900 1   0060 0230 0060  00.4 00.1 00.2  0060 0250 0070  0850 0880
64038 1                                                  0190 0160 0040  02.6 00.1 00.3  0110 0280 0060  0800 0850
64038 2                                                  0060 0140 0040  00.3 00.1 00.2                  0880 0900
64038 3                                                  0130 0440 0060  00.3 00.1 00.2  0070 0260 0080  0700 0890
64038 4                                                  0320 0290 0090  01.6 00.1 00.2  0110 0290 0080  0770 0850

64039 0  0065 0035 0100 1 00.8 00.1 00.7 1 1000 1000 1   0070 0030 0060  00.6 00.2 00.6  0050 0100 0060  0910 1000
64039 1                                                  0080 0040 0080  00.7 00.2 00.5  0110 0230 0120  0920 0960
64039 2                                                  0070 0030 0080  00.5 00.4 00.5                  0960 1010
64039 3                                                  0120 0040 0100  00.3 00.2 00.2                  0850 0930
64039 4                                                  0160 0060 0160  00.4 00.2 00.4  0060 0120 0070  0660 0730

64040 0  0120 0065 0115 1 00.0 00.0 00.0 1 1000 1000 1   0180 0060 0140  00.0 00.0 00.0  0080 0160 0100  0930 0970
64040 1                                                  0120 0040 0130  01.1 00.2 01.0                  0880 0890

64041 0  0075 0055 0090 1 01.0 00.4 01.0 1 1000 1000 1   0120 0020 0070  00.7 00.3 00.6  0050 0110 0050  0880 0990
64041 1                                                  0130 0020 0090  00.1 00.1 00.1  0040 0120 0050  0900 0930
64041 2                                                  0120 0050 0120  01.2 00.4 00.9                  0890 0960
64041 3                                                  0100 0040 0100  01.3 00.4 01.1                  0900 1000
64041 4                                                  0060 0020 0050  00.7 00.1 00.5  0050 0110 0040  0860 0960

64042 0  0065 0070 0070 1 01.7 00.2 01.6 1 1000 1000 1   0140 0060 0090  02.3 00.2 01.8  0070 0210 0070  0830 0920
64042 1                                                  0190 0050 0100  03.6 00.1 02.4  0070 0250 0060  0680 0700
64042 2                                                  0270 0070 0140  03.7 00.3 02.4                  0510 0630
64042 3                                                  0060 0050 0030  01.8 00.3 01.2  0060 0250 0080  0630 0660
64042 4                                                  0340 0030 0060  02.2 00.1 01.2  0040 0240 0050  0670 0790

64043 0  0050 0050 0045 1 00.0 00.0 00.0 1 0700 0700 1   0040 0020 0020  00.0 00.0 00.0  0060 0090 0070  0750 0790
64043 1                                                  0130 0060 0040  00.0 00.0 00.0  0090 0140 0080  0700 0750
64043 2                                                  0040 0030 0030  00.0 00.0 00.0                  0700 0790

64045 0  0295 0190 0105 1 03.6 00.1 00.0 1 1000 1000 1   0270 0140 0090  02.3 00.0 00.0  0170 0120 0080  0880 0900
64045 1                                                  0030 0090 0090  02.4 00.0 00.0  0110 0160 0080  0860 0900
64045 2                                                  0390 0120 0200  02.9 00.2 00.0                  0830 0860
64045 3                                                  0120 0070 0080  00.0 00.0 00.0  0120 0100 0070  0730 0790
64045 4                                                  0100 0090 0120  00.0 00.0 00.0  0110 0160 0060  0730 0780

64047 0  0020 0010 0020 1 00.0 00.0 00.0 1 0900 0900 1   0060 0080 0050  00.5 01.5 00.1  0060 0230 0060  0910 0920
64047 1                                                  0230 0080 0090  00.5 00.5 00.1                  0790 0830
64047 2                                                  0330 0090 0120  06.6 00.4 00.0                  0540 0680
64047 3                                                  0340 0060 0130  07.4 00.7 00.4  0120 0360 0100  0810 0840
64047 4                                                  0420 0130 0270  08.5 02.0 03.1  0120 0280 0110  0660 0680

64048 0  0020 0065 0030 1 00.0 02.3 00.0 1 0950 0950 1   0050 0090 0030  00.0 02.1 00.0  0090 0220 0110  0790 0850
64048 1                                                  0050 0060 0030  00.0 02.0 00.0  0060 0150 0080  0760 0820
64048 2                                                  0040 0080 0050  00.0 01.8 00.0                  0780 0840
64048 3                                                  0150 0080 0090  00.0 01.9 00.0  0070 0150 0090  0780 0820
64048 4                                                  0090 0100 0040  00.0 02.3 00.0  0100 0200 0100  0760 0800

64049 0  0030 0030 0040 1 00.7 00.1 00.6 1 1000 1000 1   0060 0020 0040  01.3 00.3 01.0  0080 0130 0080  0860 0930
64049 1                                                  0040 0020 0040  00.9 00.3 00.8                  0870 0930
64049 2                                                  0050 0020 0060  00.9 00.3 00.7                  0880 0930
64049 3                                                  0380 0030 0050  01.3 00.2 00.9  0050 0120 0050  0910 0970
64049 4                                                  0060 0020 0050  01.1 00.2 00.9  0050 0100 0050  0900 0940

64050 0  0025 0095 0030 1 00.0 01.4 00.0 1 0800 0800 1   0050 0030 0030  00.2 00.1 00.0  0090 0520 0100  0850 0840
64050 1                                                  0040 0030 0030  00.0 00.1 00.0                  0890 0890
64050 2                                                  0180 0070 0080  02.9 00.0 00.0  0120 0380 0080  0870 0890
64050 3                                                  0220 0120 0070  01.5 00.5 00.0  0140 0750 0080  0840 0880
64050 4                                                  0180 0050 0060  02.6 00.2 00.0                  0800 0880

64051 0  0035 0040 0040 1 00.0 00.0 00.0 1 0900 0900 1   0030 0020 0020  00.0 00.0 00.0  0060 0240 0070  0900 0900
64051 1                                                  0030 0020 0020  00.0 00.0 00.0                  0840 0920
64051 2                                                  0030 0020 0020  00.0 00.0 00.0  0025 0140 0030  0910 1000
64051 3                                                  0040 0030 0020  00.0 00.0 00.0  0040 0200 0060  0880 0950
64051 4                                                  0030 0030 0030  00.0 00.0 00.0  0060 0200 0060  1050 1020

64052 0  0200 0120 0340 1 00.1 02.4 00.4 1 0850 0850 1   0340 0060 0200  01.0 00.1 00.1  0200 0280 0200  0730 0770
64052 1                                                  0270 0080 0200  00.0 00.0 00.1                  0710 0790
64052 2                                                  0190 0060 0170  00.1 00.1 00.1  0100 0180 0110  0630 0670
64052 3                                                  0160 0040 0120  00.3 00.0 00.5  0100 0300 0110  0660 0710
64052 4                                                  0270 0070 0240  01.3 00.0 01.2  0110 0170 0110  0830 0850

64053 0  0060 0025 0190 1 00.3 00.2 00.2 1 0800 0800 1   0120 0030 0160  00.2 00.3 00.2                  0790 0820
64053 1                                                  0090 0040 0090  00.2 00.2 00.1  0050 0100 0045  0820 0880
64053 2                                                  0080 0050 0080  00.5 00.1 00.3  0020 0050 0020  1010 0790
64053 3                                                  0070 0030 0090  00.3 00.2 00.2  0060 0110 0060  0800 0840
64053 4                                                  0080 0020 0080  00.2 00.2 00.1  0050 0100 0050  0810 0840

64054 0  0165 0140 0120 1 00.0 00.0 00.0 1 0800 0800 1   0130 0080 0080  00.0 00.0 00.0  0080 0130 0070  0800 0880
64054 1                                                  0080 0080 0060  00.0 00.0 00.0  0090 0140 0100  1040 0890
64054 2                                                  0160 0060 0080  00.0 00.0 00.0  0110 0240 0100  0670 0820
64054 3                                                  0020 0020 0020  00.0 00.0 00.0  0130 0190 0110  0850 0870
64054 4                                                  0060 0020 0050  00.0 00.0 00.0  0090 0180 0090  0820 0860

64055 0  0130 0075 0080 1 00.0 00.0 00.0 1 0950 0950 1   0150 0030 0130  00.0 00.0 00.0  0050 0120 0060  0780 0850
64055 1                                                  0130 0020 0200  00.0 00.0 00.0  0070 0180 0080  0830 0880
64055 2                                                  0210 0040 0170  02.4 00.3 02.7  0130 0200 0130  1000 1020
64055 3                                                  0230 0060 0160  02.2 00.5 02.5  0140 0200 0140  0990 1020
64055 4                                                  0120 0020 0070  00.0 00.0 00.0  0120 0260 0140  0790 0840

64056 0  0050 0065 0075 1 00.0 00.0 00.0 1 0800 0800 1   0090 0030 0060  00.3 00.0 00.0  0040 0240 0060  0820 0890
64056 1                                                  0170 0050 0070  00.0 00.0 00.0  0090 0300 0100  0800 0910
64056 2                                                  0140 0050 0130  00.0 00.0 00.0  0160 0320 0130  1100 1140
64056 3                                                  0160 0030 0110  00.1 00.1 00.0  0060 0220 0070  0620 0760
64056 4                                                  0150 0050 0260  00.6 00.1 00.1  0050 0200 0060  0610 0640
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APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND PASS

EPANO	SEQ	D E Q	I D L E	T E S T									H T S	I D L E	T E S T								
		HC				CO				RPM			HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
64057	0	0080	0080	0125	1	01.0	00.8	00.5	1	0800	0850	1	0060	0030	0080	00.4	00.2	00.6	0080	0150	0100	0840	0810
64057	1												0080	0040	0060	00.2	00.1	00.1	0080	0200	0110	0960	1000
64057	2												0120	0230	0140	00.5	00.4	00.8	0060	0180	0080	0950	0950
64057	3												0150	0180	0160	00.9	00.4	00.9	0110	0330	0120	0980	1010
64057	4												0190	0090	0190	01.8	00.4	01.8	0140	0320	0140	1000	0970
64058	0	0135	0130	0140	1	05.5	02.0	05.5	1	0800	0800	1	0140	0030	0210	00.0	00.0	00.0	0080	0180	0080	0770	0770
64058	1												0140	0030	0060	00.3	00.3	00.2	0080	0180	0090	0730	0760
64059	0	0010	0010	0010	1	00.1	00.0	00.0	1	1100	1150	1	0030	0030	0090	00.2	00.1	00.2	0090	0140	0090	1060	1000
64059	1												0130	0020	0090	00.2	00.2	00.1	0080	0130	0080	0780	0830
64059	2												0280	0060	0200	00.2	00.3	00.3	0090	0160	0080	0730	0790
64059	3												0230	0060	0230	00.2	00.3	00.2	0080	0150	0090	0690	0750
64059	4												0180	0060	0140	00.3	00.4	00.3	0160	0160	0120	0860	0900
64060	0	0030	0020	0025	1	00.0	01.0	00.0	1	0700	0700	1	0130	0250	0150	00.0	00.0	00.0	0070	0830	0100	0780	0840
64060	1												0730	0490	0930	00.6	00.0	00.8	0100	0180	0110	1200	1240
64060	2												0140	0260	0160	01.8	00.2	03.4	0120	0140	0130	0900	0980
64060	3												0130	0100	0130	02.5	00.2	02.7	0140	0180	0150	0880	0950
64060	4												0180	0130	0160	04.9	01.0	03.2	0140	0200	0140	0950	0990
74002	0	0065	0035	0040	1	00.0	00.0	00.0	1	0800	0800	1	0060	0030	0030	00.0	00.0	00.0				0760	0770
74002	1												0050	0020	0060	00.0	00.0	00.0	0100	0250	0110	0780	0790
74002	2												0050	0030	0040	00.0	00.0	00.0				0760	0770
74002	3												0080	0060	0080	00.0	00.0	00.0				0730	0760
74002	4												0060	0040	0030	00.1	00.0	00.0	0060	0200	0050	0800	0750
74003	0	0075	0020	0100	1	00.0	00.0	00.0	1	0800	0800	1	0080	0010	0060	00.0	00.0	00.0				0700	0730
74003	1												0110	0020	0090	00.0	00.0	00.0	0030	0250	0030	0720	0730
74003	2												0570	0100	0610	01.2	00.0	00.7	0060	0330	0070	0740	0770
74003	3												0310	0030	0370	00.0	00.0	00.3				0680	0740
74003	4												0350	0060	0250	00.0	00.0	00.0	0060	0320	0080	0690	0740
74004	0	0025	0055	0030	1	00.0	00.0	00.0	1	0800	0850	1	0030	0020	0010	00.0	00.0	00.0	0060	0080	0070	0900	0910
74004	1												0370	0020	0010	06.0	00.0	00.0	0070	0100	0060	0860	0900
74004	2												0040	0030	0030	00.0	00.0	00.0	0060	0080	0060	0910	0940
74004	3												0030	0030	0020	00.0	00.0	00.0				0910	0970
74004	4												0310	0060	0040	04.9	00.0	00.0	0060	0110	0080	0850	0960
74005	0	0015	0010	0040	1	00.0	00.0	00.0	1	0800	0800	1	0040	0030	0040	00.0	00.0	00.0	0040	0200	0080	0790	0820
74005	1												0030	0050	0030	00.2	00.0	00.0	0150	0580	0120	0780	0760
74005	2												0060	0030	0040	00.2	00.2	00.1				0790	0800
74005	3												0050	0030	0040	00.0	00.0	00.0				0690	0740
74005	4												0030	0020	0030	00.0	00.0	00.0	0080	0700	0080	0720	0730
74006	0	0125	0150	0145	1	00.0	00.0	00.0	1	0900	0900	1	0100	0100	0070	00.0	00.0	00.0	0140	0280	0150	0870	0910
74006	1												0130	0030	0090	00.0	00.0	00.0	0170	0580	0180	0870	0920
74006	2												0090	0030	0110	00.0	00.0	00.0				0860	0940
74006	3												0140	0200	0050	00.0	00.1	00.0				0850	0950
74006	4												0170	0140	0060	00.0	00.0	00.0	0140	0100	0110	0890	0960
74007	0	0045	0060	0165	1	00.1	00.1	00.2	1	0800	0800	1	0100	0060	0060	00.0	00.0	00.0	0075	0140	0080	0700	0770
74007	1												0180	0060	0060	00.0	00.0	00.0	0080	0290	0080	0660	0710
74007	2												0080	0060	0050	00.0	00.0	00.0	0060	0190	0070	0650	0690
74007	3												0320	0120	0150	00.0	00.2	00.0				0550	0610
74007	4												0430	0110	0130	00.1	00.0	00.0	0090	0150	0100	0520	0590
74009	0	0040	0035	0045	1	00.2	00.3	00.1	1	1100	1050	1	0060	0030	0040	00.1	00.2	00.1	0070	0120	0080	1060	1060
74009	1												0130	0050	0090	00.2	01.0	00.2				0800	0850
74009	2												0090	0040	0090	00.1	00.7	00.1				0830	0850
74009	3												0000	0020	0010	00.0	00.0	00.0	0040	0080	0060	0860	0850
74009	4												0050	0030	0050	00.1	00.3	00.1	0060	0140	0060	0840	0850
74010	0	0045	0065	0045	1	00.0	00.0	00.0	1	0850	0850	1	0060	0030	0050	00.0	00.0	00.0	0070	0260	0100	0770	0830
74010	1												0030	0020	0020	00.0	00.0	00.0	0100	0170	0120	0750	0810
74010	2												0160	0050	0130	00.0	00.0	00.0	0020	0020	0020	0690	0740
74010	3												0050	0030	0050	00.0	00.0	00.0				0670	0680
74010	4												0060	0040	0050	00.0	00.0	00.0	0040	0120	0040	0600	0590
74011	0	0050	0060	0055	1	01.4	00.9	01.6	1	1100	1100	1	0080	0040	0080	01.8	00.6	02.0	0200	0260	0200	1080	1080
74011	1												0090	0040	0090	02.3	00.5	02.5	0170	0220	0180	1050	1050
74011	2												0060	0030	0070	01.7	00.6	01.9	0080	0140	0090	1050	1050
74011	3												0110	0080	0120	00.3	00.1	00.3				0990	0990
74011	4												0100	0050	0120	02.8	00.9	04.3	0060	0140	0060	1100	1020
74012	0	0060	0035	0075	1	01.5	00.1	01.6	1	1100	1100	1	0080	0020	0060	01.2	00.2	00.9	0080	0150	0080	1020	1170
74012	1												0090	0040	0080	00.7	00.3	00.8	0080	0160	0080	0970	0990
74012	2												0090	0030	0060	00.9	00.3	00.7				0950	1000
74012	3												0070	0050	0080	00.5	00.1	00.5				1060	1110
74012	4												0100	0050	0100	00.8	00.2	00.8	0050	0150	0050	0920	0990
74014	0	0150	0175	0390	1	00.1	00.0	00.2	1	0800	0800	1	0120	0100	0060	00.0	00.0	00.0	0120	0180	0140	0770	0850
74014	1												0030	0130	0140	00.0	00.4	00.2	0140	0210	0080	0770	0840
74014	2												0080	0210	0090	00.3	02.0	00.5				0840	0890
74014	3												0100	0120	0060	00.0	00.6	00.0				0780	0850
74014	4												0240	0140	0300	00.1	00.2	00.3	0080	0180	0110	0850	0900
74015	0	0030	0095	0045	1	00.0	00.0	00.0	1	0950	1000	1	0060	0050	0030	00.0	00.0	00.0	0080	0100	0070	0880	0890
74015	1												0030	0170	0030	03.3	00.0	00.0	0110	0100	0110	0860	0880
74015	2												0020	0090	0020	00.0	00.0	00.0				0950	0950
74015	3												0400	0050	0020	05.3	00.0	00.0				0890	0920
74015	4												0090	0050	0030	00.0	00.0	00.0	0090	0140	0120	0900	0950
74016	0	0030	0020	0090	1	00.4	00.3	00.2	1	0950	0950	1	0060	0020	0060	01.0	00.4	01.0	0060	0060	0060	0950	0960
74016	1												0050	0020	0040	01.1	00.4	00.8	0040	0080	0050	0850	0880
74016	2												0050	0020	0060	01.0	00.3	00.8				0820	0900
74016	3												0060	0010	0020	00.6	00.3	00.5	0080	0120	0100	0930	0930
74016	4												0070	0020	0060	00.8	00.4	00.6	0050	0120	0060	0810	0860
74017	0	0030	0035	0090	1	00.9	00.2	00.8	1	0850	1000	1	0080	0020	0070	01.6	00.4	01.3	0050	0080	0060	0710	0740
74017	1												0080	0030	0070	01.1	00.4	00.9	0050	0130	0050	0770	0830
74017	2												0090	0030	0080	01.3	00.3	01.0				0750	0840
74017	3												0040	0020	0030	00.9	00.4	00.9	0040	0090	0040	0880	0880
74017	4												0050	0020	0050	01.0	00.4	00.8	0050	0100	0060	0800	0840

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND PASS

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       S  ---------D E Q     I D L E     T E S T----------   --------------H T S    I D L E     T E S T---------------
       E  ---------HC------  ---------CO-------  ----RPM---   ------HC--------  -------CO-------  ------NOX------  --RPM---
EPANO  Q  1ST  2500  2ND S  1ST  2500  2ND S  1ST  2ND S    1ST  2500  2ND   1ST  2500  2ND   1ST  2500  2ND   1ST  2ND
74018  0  0100 0075 0100 1 00.0 00.0 00.0 1 0900 0900 1    0150 0030 0050 00.0 00.0 00.0 0070 0110 0080 0820 0870
74018  1                                                   0120 0040 0060 00.0 00.0 00.0 0050 0080 0070 0830 0870
74018  2                                                   0250 0060 0100 00.0 00.0 00.0                0790 0910
74018  3                                                   0600 0120 0090 05.7 00.0 00.0 0110 0160 0120 0850 0920
74018  4                                                   0060 0020 0020 00.0 00.0 00.0 0070 0110 0090 0930 0990

74019  0  0045 0030 0115 1 00.1 00.3 00.1 1 0750 0750 1    0080 0030 0070 00.1 00.5 00.1 0020 0060 0040 0820 0960
74019  1                                                   0380 0030 0060 00.1 00.4 00.1 0060 0060 0060 0820 0830
74019  2                                                   0090 0050 0080 00.1 00.5 00.1                0650 0710
74019  3                                                   0060 0030 0060 00.2 00.4 00.2 0050 0070 0050 0890 0910
74019  4                                                   0130 0030 0050 00.2 00.4 00.2 0080 0080 0070 0770 0810

74020  0  0040 0035 0040 1 00.1 00.0 00.1 1 0800 0800 1    0060 0020 0050 00.0 00.0 00.0 0120 0310 0130 0690 0680
74020  1                                                   0310 0060 0200 00.0 00.0 00.0 0070 0270 0080 0740 0780
74020  2                                                   0210 0060 0200 04.6 00.1 02.2                0770 0720
74020  3                                                   0280 0080 0280 06.3 00.0 06.5 0120 0400 0120 0720 0740
74020  4                                                   0310 0080 0310 06.7 00.0 06.8 0130 0520 0140 0710 0720

74021  0  0075 0085 0065 1 01.5 00.1 00.0 1 0800 0800 1    0360 0030 0030 00.0 00.0 00.0 0070 0110 0100 0750 0830
74021  1                                                   0390 0060 0030 00.0 00.0 00.0 0070 0130 0080 0770 0840
74021  2                                                   0080 0070 0070 00.0 00.0 00.0                0730 0810
74021  3                                                   0380 0050 0060 00.0 00.0 00.0 0060 0130 0090 0750 0830
74021  4                                                   0390 0190 0030 02.7 00.0 00.0 0090 0090 0110 0780 0880

74023  0  0040 0025 0190 1 00.7 00.2 00.5 1 1000 1000 1    0080 0020 0040 00.6 00.3 00.5 0030 0100 0030 0880 0940
74023  1                                                   0380 0020 0080 00.4 00.3 00.4 0040 0080 0040 0820 0840
74023  2                                                   0060 0030 0080 01.1 00.4 01.1                0780 0740
74023  3                                                   0390 0040 0800 00.5 00.4 00.4 0040 0100 0040 0800 0830

74024  0  0045 0040 0065 1 00.7 00.4 00.5 1 1000 1000 1    0050 0020 0050 00.4 00.3 00.5 0030 0090 0040 0920 0930
74024  1                                                   0340 0020 0030 00.4 00.3 00.4 0030 0080 0040 0920 0940
74024  2                                                   0080 0030 0060 00.7 00.3 00.7                0880 0890
74024  3                                                   0090 0040 0090 00.6 00.3 00.5 0040 0080 0040 0840 0910

74025  0  0060 0020 0035 1 00.3 00.0 00.2 1 1000 1000 1    0060 0010 0020 00.2 00.0 00.1 0110 0410 0090 0900 0970
74025  1                                                   0090 0020 0050 00.9 00.0 00.5                0860 0930
74025  2                                                   0100 0050 0100 00.8 00.2 01.2                0820 0900
74025  3                                                   0120 0020 0120 01.3 00.0 01.2 0120 0360 0120 0910 0930
74025  4                                                   0050 0020 0080 00.0 00.0 00.0 0100 0320 0110 0860 0800

74026  0  0015 0015 0025 1 00.0 00.0 00.0 1 0850 0850 1    0030 0020 0030 00.0 00.0 00.0 0090 0140 0080 0750 0730
74026  1                                                   0350 0020 0030 00.0 00.0 00.0 0050 0110 0060 0660 0710
74026  2                                                   0060 0030 0060 00.0 00.0 00.0                0690 0750
74026  3                                                   0350 0020 0030 00.0 00.0 00.0 0080 0160 0080 0730 0720
74026  4                                                   0040 0020 0020 00.0 00.0 00.0 0080 0180 0090 0680 0700

74027  0  0065 0045 0065 1 00.0 00.0 00.0 1 0800 0800 1    0380 0070 0260 00.0 00.0 00.0 0030 0060 0040 0690 0690
74027  1                                                   0270 0120 0290 00.4 01.2 00.1                0890 0860
74027  2                                                   0190 0120 0200 00.0 00.0 00.0                0830 0920
74027  3                                                   0240 0140 0130 00.1 00.1 00.0 0090 0250 0120 0830 0860
74027  4                                                   0130 0220 0120 00.0 00.0 00.0 0110 0320 0140 0810 0820

74028  0  0050 0015 0015 1 00.0 00.3 00.0 1 0900 0900 1    0060 0020 0020 00.0 00.0 00.0 0080 0290 0080 0650 0690
74028  1                                                   0030 0010 0030 00.0 00.0 00.0                0640 0700

74031  0  0065 0065 0065 1 00.0 00.9 00.0 1 0750 0750 1    0090 0060 0060 00.1 01.1 00.0                0740 0770
74031  1                                                   0020 0020 0010 00.0 00.0 00.0 0060 0340 0090 0790 0790
74031  2                                                   0240 0050 0200 00.0 00.0 00.0 0060 0260 0070 0600 0630
74031  3                                                   0220 0050 0070 00.2 00.0 00.0 0080 0270 0080 0700 0740
74031  4                                                   0030 0030 0020 00.1 00.3 00.0 0080 0180 0090 0780 0800

74032  0  0045 0025 0075 1 01.1 00.2 00.7 1 0800 0800 1    0100 0050 0100 01.0 00.4 00.9 0040 0020 0060 0730 0770
74032  1                                                   0030 0010 0040 00.7 00.3 00.5 0040 0100 0050 0850 0920
74032  2                                                   0060 0020 0050 00.8 00.4 00.7 0050 0100 0060 0870 0920
74032  3                                                   0040 0010 0030 00.8 00.4 00.6 0040 0120 0070 0900 0950
74032  4                                                   0340 0020 0040 00.9 00.4 00.9 0100 0140 0100 0890 0910
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
25001	0	0035	0045	0070	1	00.1	01.4	00.1	1	0850	0900	1	0370	0030	0100	00.6	00.1	00.4				0950	1010
25001	M	0025	0030	0120	1	00.2	00.8	00.1	1	0950	1000	1	0350	0030	0060	00.3	00.5	00.2				0960	0900
25001	1												0390	0030	0080	00.5	00.4	00.1	0100	0290	0080	1040	1020
25001	2												0390	0190	0560	09.9	04.0	09.9				0930	1040
25001	3												0570	0160	0650	01.2	01.1	00.9				1160	1050
25001	4												0100	0030	0100	00.3	00.2	00.3	0100	0340	0110	0620	0660
25002	0	0035	0035	0050	1	00.5	00.2	00.5	1	0900	0950	1	0350	0020	0050	00.5	00.2	00.5				0850	0870
25002	M	0020	0020	0040	1	00.6	00.1	00.5	1	0850	0900	1	0380	0040	0060	00.8	00.1	00.7	0020	0170	0020	0740	0770
25002	1												0380	0030	0060	00.8	00.1	00.6	0040	0220	0060	0780	0810
25002	2												0360	0020	0050	00.7	00.2	00.6	0030	0125	0030	0750	0860
25002	3												0120	0040	0080	00.9	00.2	00.7				0750	0790
25002	4												0350	0050	0080	00.7	00.2	00.7	0030	0180	0030	0740	0760
25003	0	0065	0020	0075	1	03.0	00.3	02.8	2	0725	0750	1	0330	0010	0030	01.6	00.2	01.4	0070	0200	0080	0760	0800
25003	M	0040	0015	0050	1	01.4	00.1	01.7	1	0750	0750	1	0380	0020	0050	01.5	00.0	01.5	0040	0200	0060	0750	0800
25003	1												0600	0030	0420	02.4	00.2	01.6	0060	0240	0060	0760	0790
25003	2												0050	0020	0030	01.8	00.5	01.3	0070	0160	0070	0760	0820
25003	3												0060	0020	0060	01.2	00.2	01.5				0800	0820
25003	4												0070	0030	0050	02.0	00.1	02.0	0090	0200	0100	0840	0840
25004	0	0285	0090	0310	1	07.7	00.7	07.5	2	0500	0550	1	0220	0080	0220	04.6	00.3	05.1	0100	0240	0120	0590	0610
25004	M	0025	0025	0060	1	00.1	00.3	00.1	1	0750	0750	1	0130	0020	0060	00.4	00.3	00.1	0130	0290	0130	0690	0650
25004	1												0120	0060	0060	00.5	00.4	00.2	0130	0320	0110	0950	0810
25004	2												0170	0070	0160	00.6	00.4	00.7				0680	0760
25004	3												0170	0090	0160	00.9	00.6	00.7				0560	0610
25004	4												0100	0040	0090	00.8	00.5	01.2	0100	0280	0120	0590	0630
25005	0	0060	0030	0090	1	01.0	00.1	00.7	1	0800	0800	1	0330	0020	0060	00.1	00.1	00.2	0090	0180	0100	0690	0760
25005	M	0240	0055	0210	1	00.1	00.1	00.3	1	0800	0800	1	0370	0030	0260	00.2	00.0	00.3	0160	0150	0080	0600	0700
25005	1												0170	0020	0200	00.4	00.1	00.3	0100	0250	0110	0780	0760
25005	2												0510	0080	0280	01.2	00.1	00.7	0050	0130	0060	0550	0710
25005	3												0480	0060	0210	03.3	00.7	02.2				0670	0710
25005	4												0300	0050	0250	00.6	00.1	01.7	0090	0170	0080	0700	0670
25006	0	0175	0040	0230	1	04.1	00.1	03.9	2	0800	0800	1	0150	0020	0130	02.0	00.0	02.6	0120	0240	0140	0710	0750
25006	M	0115	0035	0165	1	02.3	00.1	02.9	1	0700	0700	1	0130	0020	0120	02.2	00.1	02.8	0100	0200	0110	0670	0730
25006	1												0130	0040	0150	02.5	00.1	03.3	0160	0270	0160	0680	0710
25006	2												0160	0030	0160	02.6	00.1	03.3	0100	0200	0110	0670	0730
25006	3												1230	0080	0570	03.4	00.1	00.8				0560	0610
25006	4												0190	0030	0160	03.3	00.1	02.9	0120	0210	0140	0690	0770
25007	0	0175	0050	0330	2	03.8	00.1	03.3	2	0700	0700	2	0290	0080	0200	04.2	00.2	02.8	0100	0220	0100	0630	0660
25007	M	0190	0300	0190	1	00.2	00.1	00.2	1	0500	0500	1	0270	0080	0160	03.2	00.1	00.2	0050	0120	0050	0490	0510
25007	1												0120	0080	0130	03.4	00.2	00.4	0070	0290	0080	0540	0560
25007	2												0150	0030	0130	03.2	00.1	00.3	0040	0180	0045	0550	0590
25007	3												0170	0060	0160	03.5	00.6	00.5				0610	0650
25007	4												0380	0020	0060	03.2	00.1	00.2	0080	0200	0080	0680	0680
25008	0	2000	1020	2000	2	00.1	00.9	00.1	1	0600	0700	1	1290	0180	2360	00.1	00.1	00.2	0050	0200	0020	0650	0600
25008	M	0040	0035	0055	1	00.3	00.1	00.2	1	1200	1200	1	0380	0020	0050	00.1	00.3	00.1	0120	0260	0120	0700	0790
25008	1												0550	0050	0700	00.2	00.2	00.2	0020	0250	0040	0540	0620
25008	2												0130	0070	0130	00.2	00.3	00.2				0750	0790
25008	3												0110	0030	0120	00.1	00.1	00.1	0070	0220	0100	0780	0840
25008	4												0140	0020	0130	00.5	00.2	00.4	0130	0280	0160	0610	0650
25009	0	0205	0065	0280	1	02.6	00.2	03.1	2	0700	0750	1	0250	0050	0250	02.8	00.2	02.6	0080	0170	0080	0690	0720
25009	M	0175	0055	0305	1	01.2	00.1	01.6	1	0600	0600	1	0310	0080	0240	03.7	00.2	01.5	0040	0260	0130	0580	0660
25009	1												0200	0040	0250	01.6	00.2	02.4	0140	0250	0130	0720	0670
25009	2												0210	0030	0210	01.4	00.1	02.2	0070	0160	0080	0650	0680
25009	3												0190	0040	0160	01.3	00.1	01.3				0600	0680
25009	4												0190	0030	0140	01.5	00.1	01.0	0040	0080	0040	0680	0720
25010	0	0295	0210	0350	1	06.8	03.3	06.7	2	1000	1000	1	0410	0220	0350	05.8	02.7	06.0	0160	0480	0120	0870	1000
25010	M	0175	0325	0215	1	00.8	04.1	00.6	1	1050	1050	1	0230	0150	0230	03.9	01.9	04.9	0120	0430	0130	0860	0860
25010	1												0280	0200	0270	03.9	01.6	03.8	0120	0910	0110	0800	0780
25010	2												0180	0120	0180	03.6	00.9	00.7				0790	0830
25010	3												0250	0200	0240	00.6	01.6	00.6				0770	0790
25010	4												0150	0120	0150	00.2	00.7	00.2	0110	0600	0110	0770	0770
25011	0	0205	0150	0205	1	05.8	02.2	03.6	2	0750	0750	1	0200	0050	0150	01.1	00.2	01.8	0120	0600	0120	0760	0790
25011	M	0105	0050	0170	1	00.1	00.1	00.1	1	0700	0700	1	0230	0060	0160	00.2	00.2	00.3	0120	0900	0140	0620	0700
25011	1												0280	0090	0160	00.2	00.3	00.2	0100	0880	0120	0650	0670
25011	2												0180	0050	0120	00.1	00.2	00.1				0650	0690
25011	3												0200	0030	0130	00.2	00.1	00.2	0090	0370	0130	0630	0660
25011	4												0120	0020	0100	00.2	00.1	00.1	0110	0440	0120	0650	0670
25012	0	0280	0090	0330	1	09.1	01.2	09.1	2	0750	0780	1	0610	0140	0480	09.9	01.0	09.9	0160	0620	0160	0650	0700
25013	0	0100	0045	0140	1	04.7	00.5	04.6	2	0700	0700	1	0160	0050	0140	04.9	00.5	04.9	0130	0600	0140	0740	0780
25013	M	0060	0075	0125	1	01.1	00.5	00.9	1	0700	0700	1	0390	0060	0080	00.5	00.4	00.6	0110	0580	0120	0620	0680
25013	1												0180	0050	0160	06.8	00.6	06.8	0150	0550	0160	0820	0820
25013	2												0170	0070	0180	06.9	01.3	06.9				0780	0780
25013	3												0230	0080	0170	08.9	01.3	07.7	0120	0510	0140	0720	0790
25013	4												0140	0040	0130	06.6	00.3	05.7	0120	0580	0140	0600	0700
25014	0	0085	0050	0175	1	01.6	00.2	01.8	1	1450	1450	2	0160	0050	0180	01.3	00.2	01.5	0100	0620	0100	0670	0690
25014	M	0035	0115	0175	1	00.1	00.8	00.2	1	0800	0800	1	0130	0050	0120	00.8	00.3	00.9	0060	0580	0070	0800	0800
25014	1												0080	0030	0080	00.2	00.2	00.5	0040	0200	0040	0700	0720
25014	2												0090	0040	0100	00.7	00.3	00.8				0750	0750
25014	3												0130	0130	0120	00.4	01.0	00.8				0650	0720
25014	4												0050	0020	0050	00.5	00.2	00.3	0040	0220	0040	0740	0730
25015	0	0285	0205	0615	1	00.6	00.1	00.2	1	1250	1250	2	0920	0170	0990	00.2	00.2	00.2	0110	0200	0100	0950	1100
25015	M	0140	0110	0330	1	00.4	00.2	00.7	1	1050	1050	1	0240	0120	0210	02.0	00.6	01.6	0110	0280	0120	1140	1160
25016	0	0340	0100	0425	1	04.3	00.2	03.9	2	0700	0700	1	0430	0090	0430	03.9	00.2	03.5	0100	0390	0110	0690	0730
25016	M	0090	0030	0140	1	02.3	00.1	01.7	1	0800	0800	1	0120	0030	0120	01.3	00.4	01.4	0060	0140	0100	0740	0750
25016	1												0080	0010	0070	00.9	00.1	00.6	0130	0200	0140	0770	0750
25016	2												0100	0020	0110	00.4	00.0	00.9				0760	0790
25016	3												0080	0020	0100	00.8	00.1	01.6	0090	0190	0110	0760	0810
25016	4												0120	0030	0130	01.9	00.1	02.6	0110	0230	0120	0770	0790

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

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        S  ---------D E Q    I D L E     T E S T-----------  -----------H T S    I D L E      T E S T---------------
        E  ---------HC------- --------CO--------  ---RPM----  -----HC------- -----CO------- -----NOX------ --RPM----
EPANO Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S  1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND

25017 0  0125 0455 0185 1 05.3 00.3 04.8 2 0750 0650 1  0160 0390 0200 04.5 00.3 04.9 0140 0590 0160 0600 0610
25017 M  0015 0740 0075 1 00.1 00.2 00.1 1 0800 0800 1  0330 0300 0060 00.1 00.2 00.1 0180 0240 0180 0840 0850
25017 1                                                 0110 0820 0100 01.4 00.2 00.1 0180 0660 0150 0840 0900
25017 2                                                 0800 1100 0860 00.2 00.3 00.2                0860 0860
25017 3                                                 0310 0390 0300 08.8 00.5 09.4 0130 0340 0140 0890 0920
25017 4                                                 0170 0030 0160 06.9 00.4 07.6 0170 0280 0170 0820 0830

25019 0  0075 0060 0185 1 03.8 01.4 03.7 2 0550 0600 1  0120 0140 0140 02.7 00.6 03.0 0120 0700 0140 0510 0520
25019 M  0060 0240 0110 1 02.5 00.7 02.3 1 0600 0600 1  0120 0280 0090 01.7 00.4 02.3 0100 0180 0110 0640 0560
25019 1                                                 0040 0500 0100 00.6 00.4 02.0 0170 0910 0160 0810 0600
25019 2                                                 0060 0280 0080 01.9 00.6 03.0                0640 0700
25019 3                                                 0100 0150 0070 00.8 00.5 00.8 0140 0600 0150 0780 0810
25019 4                                                 0150 0290 0080 00.2 00.3 00.4 0140 0510 0180 0940 0990

25020 0  0210 0155 0300 2 04.1 01.2 04.4 1 0700 0700 1  0290 0120 0240 01.8 00.4 01.6 0110 0530 0130 0690 0740
25020 M  0110 0090 0155 1 00.8 00.4 00.9 1 0600 0600 1  0130 0080 0080 00.3 00.4 00.4 0060 0390 0090 0560 0610
25020 1                                                 0160 0060 0130 00.6 00.4 01.5 0080 0510 0100 0660 0690
25020 2                                                 0440 0160 0340 05.2 00.5 05.6                0600 0700
25020 3                                                 0220 0090 0240 04.1 00.5 04.5 0060 0320 0080 0270 0630
25020 4                                                 0190 0090 0160 02.9 00.3 03.2 0050 0420 0090 0580 0610

25021 0  0260 0425 0295 1 06.2 02.8 03.6 2 1700 1000 1  0290 0260 0430 05.0 02.9 03.9 0210 0450 0170 1670 0850
25021 M  0160 0190 0155 1 00.4 01.9 00.2 1 1000 1000 1  0250 0190 0210 00.3 01.2 00.2 0080 0320 0090 0750 0890
25021 1                                                 0340 0270 0290 01.5 02.8 02.0 0200 0530 0210 0760 0880
25021 2                                                 0420 0270 0350 04.1 02.3 04.0                0820 0900
25021 3                                                 0360 0230 0270 02.2 02.6 01.9 0120 0270 0120 0880 0930
25021 4                                                 0380 0240 0280 02.5 02.3 02.0 0130 0400 0150 0790 0910

25022 0  0200 0050 0220 1 04.4 00.3 04.5 2 0700 0700 1  0240 0030 0170 02.1 00.1 03.5 0110 0280 0120 0640 0710
25022 M  0275 0040 0425 1 01.7 00.1 01.2 1 0800 0800 1  0520 0090 0410 01.0 00.2 01.2 0080 0200 0080 0700 0760
25022 1                                                 0850 0100 0620 01.1 00.2 01.3 0080 0170 0080 0680 0770
25022 2                                                 1480 0180 0950 00.7 00.2 00.9                0680 0760
25022 3                                                 1400 0280 0960 01.3 00.3 02.6 0110 0410 0120 0660 0870
25022 4                                                 0730 0260 0640 02.8 00.5 03.3 0130 0490 0150 0880 0880

25023 0  0695 0115 0765 2 00.1 01.2 00.1 1 0650 0700 1  0530 0200 0380 00.2 00.1 00.2                0600 0690
25023 M  0110 0055 0065 1 00.5 00.7 00.6 1 0900 0900 1  0150 0050 0100 00.4 00.1 00.3 0100 0180 0130 0770 0760
25023 1                                                 0050 0020 0200 00.1 00.1 00.5 0100 0080 0070 1200 0800
25023 2                                                 0080 0100 0600 00.2 00.3 00.3                0650 0690
25023 3                                                 0120 0050 0100 00.9 00.4 00.2 0080 0200 0070 0600 0580
25023 4                                                 0080 0020 0160 00.2 00.3 00.8 0140 0340 0140 0920 0620

25024 0  0640 0245 0770 2 07.0 03.0 07.0 2 0600 0600 1  0470 0110 0620 06.5 00.3 06.8 0100 0600 0100 0780 0590
25024 M  0100 0100 0420 1 00.1 00.1 00.1 1 0700 0700 1  0430 0120 0420 00.2 00.4 00.2                0670 0710
25024 1                                                 0400 0200 0460 03.6 00.2 04.2 0080 0200 0090 0680 0710
25024 2                                                 0500 0090 0620 06.8 00.3 06.2                0610 0630
25024 3                                                 0270 0140 0640 04.2 00.2 08.2 0130 0540 0130 0990 0560
25024 4                                                 1170 1750 2080 05.6 00.2 06.8 0120 0280 0120 0750 0540

25025 0  0055 0105 0090 1 03.2 03.2 03.2 2 1200 1400 1  0060 0120 0100 01.2 02.2 01.8 0120 0160 0110 1350 1440
25025 M  0025 0065 0045 1 00.1 00.9 00.1 1 0800 0800 1  0030 0080 0050 00.1 01.4 00.1 0065 0200 0090 0790 0790
25025 1                                                 0120 0100 0040 00.2 01.7 00.2 0070 0200 0090 0730 0820
25025 2                                                 0080 0070 0070 00.1 00.9 00.1                0670 0700
25025 3                                                 0080 0050 0060 00.1 00.9 00.1 0050 0230 0040 0600 0640
25025 4                                                 0040 0080 0080 00.1 00.7 00.1 0040 0280 0040 0670 0620

25026 0  0125 0125 0100 1 00.1 00.5 00.1 1 1200 1200 2  0120 0050 0120 00.2 00.2 00.2 0130 0240 0120 1020 1050
25026 M  0090 0115 0155 1 00.1 00.6 00.1 1 1200 1200 1  0220 0060 0210 01.8 00.2 02.0 0160 0280 0150 1200 1210
25026 1                                                 0260 0060 0240 02.5 00.3 02.8                1180 1190
25026 2                                                 0240 0140 0250 00.3 00.2 00.2 0120 0130 0110 1060 1070
25026 3                                                 0270 0050 0190 00.1 00.2 00.1 0110 0150 0120 0970 1060
25026 4                                                 0260 0090 0440 00.3 00.2 00.4 0160 0540 0140 0790 0870

25027 0  1835 0565 1580 2 07.3 06.6 06.8 2 0600 0600 1  0860 0670 0700 05.8 03.2 05.6 0080 0200 0090 0630 0650
25027 M  0420 0120 0400 1 02.9 00.7 01.3 1 0650 0650 1  0410 0090 0320 02.4 00.2 03.3 0100 0250 0120 0630 0650
25027 1                                                 0720 0110 0490 02.1 00.2 03.4                0560 0630
25027 2                                                 0230 0060 0190 01.3 00.2 01.7                0540 0600
25027 3                                                 0320 0050 0260 03.5 00.1 03.8 0090 0280 0100 0600 0630
25027 4                                                 1530 1160 1590 02.5 01.4 01.7 0060 0380 0080 0610 0660

25028 0  0210 0050 0300 1 06.1 00.1 06.1 2 0800 0800 1  0250 0020 0240 06.3 00.2 06.1 0090 0280 0110 0720 0760
25028 M  0140 0035 0190 1 02.0 00.1 02.4 1 0800 0800 1  0240 0050 0210 01.7 00.5 02.1 0090 0300 0100 0760 0800
25028 1                                                 0170 0030 0170 03.2 00.4 04.0                0710 0750
25028 2                                                 0230 0060 0200 06.1 00.6 05.8 0120 0260 0120 0740 0760
25028 3                                                 0160 0030 0180 03.8 00.6 04.1 0120 0270 0140 0750 0770

25029 0  0075 0125 0090 1 04.7 03.3 04.2 2 1000 1200 1  0070 0090 0080 03.4 02.0 03.8 0095 0300 0100 0990 1100
25029 M  0200 0210 0310 1 04.4 03.4 03.6 2 0800 0800 1  0120 0190 0200 03.0 02.5 02.6                0930 0970
25029 1                                                 0090 0190 0080 01.6 02.6 01.7 0080 0190 0090 0910 0960
25029 2                                                 0110 0070 0100 02.9 01.8 03.3 0080 0220 0070 0850 0890
25029 3                                                 0090 0080 0090 01.9 01.9 01.9 0150 0180 0140 1290 1360

25030 0  0215 0135 0243 1 05.7 01.6 05.8 2 0600 0600 1  0250 0120 0230 04.0 00.7 04.9 0080 0260 0090 0580 0610
25030 M  0135 0065 0170 1 00.3 00.7 00.5 1 0600 0600 1  0220 0100 0180 00.4 00.9 00.3 0060 0300 0080 0600 0640
25030 1                                                 0240 0090 0230 03.2 00.8 04.1 0120 0270 0120 0620 0640
25030 2                                                 0200 0090 0190 01.9 00.6 02.5                0580 0620
25030 3                                                 0230 0150 0260 03.6 00.5 04.1 0120 0350 0120 0700 0710

25031 0  0475 0070 0555 1 05.3 00.2 05.2 2 0750 0750 1  0530 0070 0550 05.7 00.3 06.4 0100 0070 0100 0760 0750
25031 M  0200 0055 0165 1 01.4 00.2 01.7 1 0800 0800 1  0200 0030 0180 00.8 00.1 01.0 0130 0190 0140 0710 0750
25031 1                                                 0950 0200 1070 07.3 00.3 07.4                0600 0580
25031 2                                                 1430 0160 1420 08.9 00.2 08.9                0520 0530
25031 3                                                 0520 0050 0520 05.3 00.1 05.6 0110 0340 0130 0660 0710
25031 4                                                 0500 0120 0730 06.3 00.3 06.8 0140 0420 0130 0700 0700

25032 0  0550 0090 0455 2 06.9 06.3 04.7 2 0600 0600 1  0570 0100 0540 04.8 00.2 05.6 0100 0250 0110 0570 0640
25032 M  0385 0060 0245 1 02.3 00.1 02.1 1 0800 0800 1  0370 0070 0280 02.9 00.1 03.6 0140 0310 0150 0780 0770
25032 1                                                 0550 0230 0360 01.9 00.2 02.8 0050 0200 0070 0620 0700
25032 2                                                 0320 0050 0300 02.5 00.1 03.7                0710 0780
25032 3                                                 0190 0040 0140 03.4 00.8 03.1 0120 0240 0130 0560 0660
25032 4                                                 0190 0040 0200 03.0 00.2 03.2 0080 0210 0080 0530 0400

25033 0  2000 2000 2000 2 10.7 11.5 10.6 2 0550 0550 1  1080 0150 0650 09.9 03.8 09.9 0180 0250 0140 0850 0900
25033 M  0630 0195 0595 2 00.1 00.1 00.1 1 0800 0800 1  0550 0140 0590 00.2 00.1 00.2 0080 0240 0080 0820 0840
25033 1                                                 0450 0090 0430 00.2 00.1 00.2 0050 0130 0050 0830 0790
25033 2                                                 0190 0060 0100 00.4 00.2 00.2                0960 0820
25033 3                                                 0100 0060 0080 01.5 00.7 00.8 0060 0200 0080 0830 0850
25033 4                                                 0750 0120 0530 00.9 00.6 00.6 0080 0220 0080 0690 0730
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

```
      S
      E  ---------D E Q   I D L E    T E S T---------   -------------H T S   I D L E    T E S T--------------
EPANO Q  --------HC-----  -------CO-----    ---RPM---   -----HC-------  -----CO------  -----NOX-----  --RPM---
         1ST 2500 2ND S  1ST 2500 2ND S  1ST  2ND S    1ST 2500 2ND   1ST 2500 2ND   1ST 2500 2ND   1ST 2ND
25034 0  0170 0055 0215 1 04.8 00.6 04.0 2 0900 0900 1   0140 0030 0120 01.2 00.1 01.7 0120 0220 0120 0740 0790
25034 M  1240 1635 1345 2 00.4 00.4 00.5 1 0700 0700 1   1570 1690 1700 00.3 00.2 00.4 0040 0170 0110 0620 0690
25034 1                                                  1310 1300 1220 00.4 00.3 00.4 0040 0160 0060 0600 0650
25034 2                                                  1340 1670 1490 00.4 00.3 00.6                0630 0660
25034 3                                                  0310 0050 0120 00.4 00.1 00.4 0060 0240 0080 0620 0630
25034 4                                                  0190 0050 0190 01.0 00.2 00.6 0090 0260 0080 0610 0620

25035 0  0090 0060 0135 1 02.7 01.0 02.7 2 0900 0900 1   0130 0040 0110 02.9 01.1 02.5 0140 0200 0140 0790 0850
25035 M  0580 0090 0590 2 00.1 00.3 00.1 1 0800 0800 1   1110 0100 1090 00.3 00.6 00.3                0610 0550
25035 1                                                  0200 0050 0110 00.2 00.4 00.1                0970 1060
25035 2                                                  0560 0050 0500 00.2 00.4 00.2 0060 0220 0020 0580 0580
25035 3                                                  0180 0050 0160 00.2 00.5 00.2 0080 0280 0110 1090 1120

25036 0  0105 0060 0135 1 03.3 00.1 03.8 2 0909 0900 1   0150 0040 0140 02.5 00.1 03.7 0140 0200 0160 0820 0880
25036 M  0080 0050 0120 1 01.4 00.4 01.6 1 0900 0900 1   0370 0020 0090 00.4 00.1 00.3 0050 0130 0060 0700 0730
25036 1                                                  0360 0010 0070 00.4 00.1 00.7 0080 0180 0100 0700 0780
25036 2                                                  0230 0030 0140 01.0 00.1 01.0                0720 0760
25036 3                                                  0100 0030 0100 00.8 00.1 01.1 0120 0250 0120 0700 0790
25036 4                                                  0260 0070 0130 01.0 00.1 00.7 0080 0220 0110 0440 0730

25037 0  0145 0085 0160 1 04.6 00.7 04.7 2 0850 0850 1   0140 0070 0140 03.0 00.6 03.1 0180 0980 0190 0820 0840
25037 M  0095 0240 0250 1 02.0 06.6 00.6 1               0140 0200 0140 00.4 03.5 00.2 0110 0680 0090 0710 0700
25037 1                                                  0170 0090 0270 00.2 00.5 00.2                0680 0710
25037 2                                                  0120 0080 0120 00.7 00.8 01.5 0160 1610 0190 0670 0710
25037 3                                                  0180 0160 0140 05.6 03.4 02.2 0140 0580 0140 0780 0770

25038 0  0730 0165 0745 2 00.1 00.1 00.1 1 0800 0800 1   0230 0030 0720 00.2 00.3 00.2 0090 0270 0090 0650 0670
25038 M  0180 0050 0230 1 00.1 00.1 00.1 1 0800 0800 1   0200 0060 0160 00.1 00.1 00.1 0060 0260 0080 0680 0700
25038 1                                                  0390 0030 0090 00.4 00.4 00.4                0680 0730
25038 2                                                  0100 0030 0120 00.6 00.8 01.5 0080 0180 0110 0650 0760
25038 3                                                  0380 0020 0120 00.4 00.2 01.2 0120 0290 0120 0610 0580
25038 4                                                  0120 0070 0320 05.1 01.0 05.5 0140 0250 0140 0630 0630

25039 0  0130 0035 0130 1 04.0 00.4 03.5 2 0650 0650 1   0170 0030 0170 04.6 00.4 04.5 0060 0310 0080 0570 0560
25039 M  0060 0040 0105 1 02.4 00.5 02.4 1 0800 0800 1   0120 0040 0080 02.4 00.3 02.4                0700 0740
25039 1                                                  0080 0020 0050 02.1 00.3 01.8                0900 0950
25039 2                                                  0060 0020 0020 01.7 00.2 01.6 0070 0360 0100 0900 0940
25039 3                                                  0120 0060 0070 02.1 00.4 01.6 0080 0230 0070 0930 0980

25040 0  0265 0080 0355 1 05.6 01.6 05.8 2 0800 0800 1   0360 0090 0380 06.9 01.6 07.1                0630 0650
25040 M  0220 0095 0200 1 02.3 02.5 02.4 1 0700 0700 1   0290 0090 0300 02.5 02.2 02.6 0060 0230 0080 0600 0600
25040 1                                                  0420 0120 0420 02.4 01.9 02.1                0640 0650
25040 2                                                  0250 0100 0270 03.1 02.2 03.7 0100 0220 0100 0590 0600
25040 3                                                  0300 0080 0300 03.4 02.1 03.9 0130 0300 0130 0590 0600
25040 4                                                  0340 0210 0790 02.5 03.8 02.7 0100 0320 0100 0530 0550

35001 0  0105 0055 0145 1 02.7 00.5 03.0 2 0650 0750 1   0120 0030 0140 02.5 00.5 02.7                0670 0700
35001 M  0120 0105 0165 1 02.8 00.6 02.4 1 0700 0700 1   0130 0030 0130 01.3 00.2 02.0 0080 0300 0100 0640 0680
35001 1                                                  0120 0020 0160 02.0 00.4 03.4 0070 0250 0090 0670 0720
35001 2                                                  0190 0080 0190 02.6 00.3 03.0                0620 0680

35002 0  1075 0150 1050 2 00.1 00.1 00.1 1 0650 0650 1   1900 0130 1580 00.2 00.1 00.2                0550 0600
35002 M  0035 0050 0090 1 00.1 00.4 00.2 1 0800 0800 1   0240 0050 0150 00.1 00.2 00.1 0080 0380 0080 0660 0690
35002 1                                                  0350 0040 0040 00.1 00.2 00.1 0120 0310 0090 0660 0700
35002 2                                                  0130 0050 0120 00.1 00.5 00.1                0730 0740
35002 3                                                  0360 0020 0050 00.1 00.2 00.1 0060 0220 0080 0750 0770
35002 4                                                  0220 0060 0110 00.2 00.2 00.1 0060 0320 0080 0640 0710

35003 0  0170 0105 0205 1 05.1 01.9 04.8 2 0800 0800 1   0180 0070 0140 03.4 00.2 02.8                0780 0840
35003 M  0100 0045 0105 1 02.1 00.2 01.8 1 0800 0800 1   0150 0060 0090 02.2 00.2 00.7 0140 1440 0140 0760 0790
35003 1                                                  0130 0050 0060 01.0 00.4 00.4 0080 0530 0060 0750 0800
35003 2                                                  0080 0030 0070 00.6 00.3 00.2                0760 0730
35003 3                                                  0280 0100 0310 00.5 00.2 00.2                0760 0730
35003 4                                                  0220 0120 0160 03.6 00.4 02.8 0140 0560 0160 0700 0780

35004 0  2060 0450 2000 2 04.2 00.4 03.4 2 0700 0700 1   2120 1380 1910 05.8 00.1 05.1                0720 0750
35004 M  0105 0120 0110 1 01.9 00.7 01.3 1 1000 0850 1   0140 0030 0120 03.4 00.5 00.6 0070 0320 0080 0790 0800
35004 1                                                  0170 0030 0160 00.9 00.2 01.3 0100 0280 0100 0710 0740
35004 2                                                  1340 1450 1880 00.9 00.4 01.2                0720 0730
35004 3                                                  2180 1790 2220 03.9 00.9 01.7                0690 0730
35004 4                                                  1950 1550 2000 01.0 00.4 01.6 0080 0260 0090 0840 0900

35005 0  0180 0140 0375 1 04.2 02.7 04.2 2 0900 0900 1   0160 0120 0170 01.6 01.5 01.4 0100 0320 0100 0810 0820
35005 M  0065 0105 0100 1 00.1 01.6 00.1 1 0800 0800 1   0100 0090 0090 00.2 00.8 00.2 0080 0500 0070 0720 0750
35005 1                                                  0150 0180 0180 02.0 04.1 02.6 0070 0170 0080 0760 0760
35005 2                                                  0140 0150 0190 00.5 02.1 01.6                0660 0750
35005 3                                                  0130 0130 0120 00.2 01.5 00.2                0670 0690
35005 4                                                  0130 0120 0160 00.5 01.6 01.1 0100 0420 0100 0670 0710

35006 0  0070 0040 0090 1 03.8 01.9 03.5 2 0700 0700 1   0170 0050 0100 04.2 00.4 03.5 0080 0240 0100 0640 0680
35006 M  0050 0035 0100 1 00.1 00.5 00.1 1 0700 0700 1   0150 0040 0090 00.2 00.1 00.2 0060 0170 0070 0590 0630
35006 1                                                  0780 0140 1010 00.4 00.3 00.4 0080 0220 0070 0610 0640
35006 2                                                  0080 0030 0090 01.6 00.5 01.1                0720 0660
35006 3                                                  0080 0030 0060 01.0 00.4 01.0 0070 0180 0080 0690 0700
35006 4                                                  0080 0020 0080 00.7 00.3 00.5 0070 0180 0070 0600 0630

35007 0  0095 0145 0210 1 02.3 03.0 02.7 2 0800 0850 1   0120 0140 0130 01.5 03.0 01.6 0080 0350 0100 0880 0900
35007 M  0050 0110 0100 1 00.1 01.0 00.1 1 0800 0900 1   0080 0120 0070 03.0 01.5 00.0 0100 0500 0110 0790 0780
35007 1                                                  0090 0150 0160 00.1 01.9 00.1 0040 0440 0060 0750 0760
35007 2                                                  0120 0190 0190 00.1 02.2 00.1                0800 0720
35007 3                                                  0140 0200 0130 00.2 03.8 00.2                0790 0850
35007 4                                                  0150 0350 0150 00.4 04.7 00.3 0040 0340 0040 0350 0810

35008 0  0215 0085 0270 1 03.1 00.2 03.9 2 0700 0700 1   0250 0060 0320 02.1 00.3 02.1 0060 0200 0080 0710 0670
35008 M  0125 0080 0165 1 02.7 02.1 02.9 1 0750 0750 1   0150 0060 0230 02.4 00.5 02.6 0110 0220 0110 0760 0760
35008 1                                                  0360 0060 0330 04.7 00.3 04.8 0150 0380 0150 0730 0760

35009 0  0075 0035 0115 1 02.2 01.0 02.1 2 0900 0900 1   0060 0020 0100 00.8 00.3 02.1 0100 0200 0120 0850 0930

35010 0  1080 0470 1220 2 01.4 00.7 01.3 1 0650 0650 1   1480 0490 1140 00.5 00.7 00.8 0060 0300 0080 0620 0630

35011 0  0230 0105 0245 1 06.3 01.3 06.1 2 0700 0700 1   0280 0080 0280 05.0 00.8 05.4 0100 0300 0120 0710 0730
35011 M  0045 0035 0175 1 00.1 00.1 00.2 1 0800 0800 1   0130 0020 0090 00.2 00.2 00.1 0080 0320 0100 0660 0730
35011 1                                                  0120 0030 0080 00.2 00.2 00.1 0090 0320 0100 0680 0700
35011 2                                                  0980 0140 0160 00.2 02.3 00.4                0620 0680
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

		DEQ IDLE TEST											MTS IDLE TEST										
	S	HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
35012	0	0190	0135	0215	1	07.2	03.1	06.2	2	0750	0750	1	0250	0120	0210	06.6	01.8	07.3	0110	0250	0140	0900	1020
35012	M	0115	0055	0105	1	02.1	00.4	00.2	1	1000	1000	1	0200	0050	0140	02.7	00.2	01.6	0110	0340	0140	0750	0970
35012	1												0200	0060	0140	01.9	00.3	02.2	0140	0310	0150	0960	0960
35012	2												0180	0080	0160	02.8	00.5	02.7				0970	0970
35012	3												0200	0080	0140	04.0	00.6	04.0	0080	0190	0100	0780	0920
35012	4												0210	0060	0170	04.9	00.7	04.7	0100	0230	0110	0870	0910
35014	0	0230	0105	0440	1	07.7	08.5	08.0	2	0800	0800	1	0400	0160	0360	06.9	06.2	07.6	0120	0480	0120	0680	0660
35015	0	0145	0105	0155	1	05.5	03.0	05.4	2	0650	0650	1	0170	0050	0120	02.9	01.2	03.6	0050	0090	0040	0650	0710
35015	M	0055	0060	0060	1	00.5	02.1	00.5	1	0800	0800	1	0080	0050	0080	00.3	01.5	00.6	0120	0260	0120	0810	0810
35015	1												0210	0050	0210	04.5	01.5	05.1	0120	0260	0110	0650	0650
35015	2												0240	0080	0250	05.3	00.8	06.1				0670	0680
35016	0	0100	0095	0120	1	03.0	00.1	03.0	2	0800	0800	1	0120	0080	0100	03.3	00.1	02.9	0070	0140	0090	0780	0790
35016	M	0085	0200	0105	1	02.1	00.3	02.0	1	0800	0800	1	0140	0060	0100	01.7	00.2	01.5	0070	0140	0090	0740	0760
35016	1												0080	0040	0060	01.6	00.1	01.3	0060	0150	0100	0660	0760
35017	0	0195	0135	0285	1	08.3	04.0	08.3	2	0900	1200	1	0120	0030	0110	04.9	01.0	05.2	0130	0500	0140	0800	1200
35017	M	0035	0020	0065	1	00.0	00.1	01.5	1	1000	1000	1	0110	0050	0060	00.9	00.3	00.4	0100	0480	0100	0750	0800
35017	1												0150	0050	0140	04.5	00.9	04.4	0120	0470	0130	0790	0840
35017	2												0530	0110	0510	00.5	00.7	00.5				0660	0660
35017	3												0490	0080	0440	00.2	00.7	00.2	0050	0330	0050	0540	0630
35017	4												0270	0050	0200	00.2	00.4	00.1	0100	0370	0070	0740	0720
35018	0	0180	0150	0195	1	05.5	06.0	04.8	2	0900	0900	1	0120	0120	0120	01.9	06.4	02.5	0160	0220	0160	0910	0950
35018	M	0160	0065	0200	1	00.6	01.2	00.5	1	0700	0700	1	0050	0110	0080	00.3	05.2	00.3	0120	0220	0120	0760	0820
35018	1												0080	0110	0060	00.2	04.3	00.2	0090	0270	0100	0790	0850
35018	2												0100	0140	0100	00.2	05.0	00.2				0750	0800
35018	3												0340	0140	0370	00.2	05.0	00.2	0040	0200	0040	0760	0730
35018	4												1750	0250	1710	00.2	04.2	00.2	0080	0260	0070	0660	0670
35019	0	0495	0310	0500	1	05.9	06.4	06.1	2	0650	0650	1	0500	0240	0370	02.6	05.0	06.2	0120	0120	0120	0730	0710
35020	0	0100	0045	0100	1	02.1	00.6	01.9	2	0900	0850	1	0170	0070	0170	02.4	00.2	02.5	0110	0640	0130	0720	0740
35021	0	0360	0260	0345	1	07.5	03.8	05.6	2	0750	0780	1	0850	0220	0650	01.1	01.4	01.5	0060	0270	0080	0790	0800
35022	0	0145	0060	0175	1	03.2	00.8	03.4	2	0900	0900	1	0150	0040	0120	01.7	00.5	02.3	0090	0250	0100	0810	0830
35022	M	0045	0025	0060	1	00.1	00.1	00.1	1	0900	0900	1	0060	0020	0050	00.2	00.3	00.2	0060	0260	0080	0760	0790
35022	1												0360	0060	0170	00.8	00.5	00.9				0810	0670
35022	2												0320	0360	0130	00.5	00.3	00.6	0080	0400	0090	0820	0880
35022	3												0580	0740	0230	00.4	00.4	00.5	0070	0460	0100	0820	0860
35023	0	0150	0145	0500	1	05.2	05.4	08.5	2	0900	0900	1	0250	0120	0230	08.1	05.3	08.3	0060	0210	0070	0920	0940
35023	M	0090	0115	0065	1	00.1	04.3	00.1	1	0700	0700	1	0120	0120	0160	00.2	04.4	00.2	0070	0260	0080	0680	0660
35023	1												0210	0160	0190	00.2	03.8	00.2				0720	0730
35023	2												0130	0130	0130	00.2	04.3	00.2				0740	0750
35023	3												0120	0120	0140	00.2	03.6	00.2	0060	0200	0070	0750	0760
35023	4												0160	0160	0140	00.2	04.0	00.2	0080	0240	0080	0730	0750
35024	0	0135	0410	0190	1	01.8	04.6	01.5	1	1000	1000	1	0200	0700	0200	00.8	03.2	00.7	0150	0530	0150	0980	0990
35025	0	0175	0050	0075	1	03.6	00.8	02.5	2	1000	1050	1	0090	0040	0050	03.2	00.6	02.6	0080	0220	0080	0760	0820
35025	M	0070	0045	0095	1	00.9	00.3	00.9	1	0800	0800	1	0090	0030	0090	00.6	00.3	00.9	0120	0330	0140	0670	0670
35025	1												0090	0040	0080	01.2	00.3	00.8	0080	0130	0080	0750	0780
35025	2												0100	0050	0090	01.4	00.4	00.6				0740	0760
35025	3												0080	0030	0060	01.2	00.3	00.4	0050	0260	0040	0750	0760
35025	4												0100	0030	0060	01.2	00.4	00.6	0070	0140	0070	0810	0830
35026	0	0145	0060	0145	1	03.7	01.4	02.7	1	1200	1200	2	0150	0050	0140	02.3	00.9	02.0	0120	0240	0120	1040	1050
35026	M	0160	0140	0210	1	02.9	01.6	01.4	1	1000	1000	1	0170	0070	0210	00.0	06.7	00.4	0080	0260	0070	0840	0840
35026	1												0250	0060	0290	00.2	00.6	00.3	0040	0160	0030	0850	0870
35026	2												0230	0060	0220	03.3	00.9	03.5				0880	0920
35026	3												0240	0120	0230	03.4	01.5	03.4	0120	0240	0120	0870	0860
35026	4												0300	0110	0290	06.1	01.2	05.6	0100	0220	0100	0620	0660
35027	0	0125	0060	0170	1	05.6	01.7	06.0	2	0950	0950	1	0160	0060	0140	03.9	00.9	04.0	0160	0440	0160	0800	0960
35027	M	0065	0070	0135	1	00.2	00.2	00.2	1	0700	0700	1	0120	0050	0060	00.2	00.5	00.1	0100	0680	0120	0590	0630
35027	1												0140	0050	0100	02.9	00.6	01.7	0080	0330	0080	0690	0720
35027	2												0170	0070	0200	06.1	00.9	06.7				0690	0730
35027	3												0050	0060	0090	00.5	00.6	01.1	0160	0570	0140	0810	0710
35027	4												0140	0060	0140	01.2	00.6	01.5	0100	0450	0120	0700	0730
35028	0	0170	0050	0165	1	06.1	00.5	05.4	2	0700	0700	1	0060	0060	0070	02.9	00.2	03.4	0090	0260	0110	0870	0810
35028	M	0045	0070	0060	1	00.9	00.9	00.8	1	0750	0750	1	0090	0080	0120	00.4	00.1	00.5	0100	0290	0110	0700	0770
35028	1												0150	0030	0110	00.9	00.4	00.7	0070	0130	0060	0740	0810
35028	2												0090	0060	0050	00.3	00.3	00.3	0070	0190	0080	1000	1070
35028	3												0050	0040	0050	00.4	00.1	00.4	0060	0260	0070	0750	0830
35028	4												0080	0050	0060	00.8	00.2	00.8	0090	0330	0100	0780	0780
35029	0	0245	0340	0235	1	05.8	06.1	05.0	2	1350	1350	1	0280	0410	0230	04.1	05.5	03.6	0170	0320	0180	1270	1290
35029	M	0155	0270	0190	1	01.3	03.0	01.2	1	1150	1150	1	0150	0160	0150	00.4	01.6	00.3	0140	0740	0160	0850	0850
35029	1												0140	0170	0160	00.4	02.5	00.8	0120	0470	0140	0870	1300
35029	2												0190	0180	0150	01.2	02.8	00.7				0980	1000
35029	3												0240	0240	0230	02.4	03.1	01.9	0120	0400	0120	1020	1060
35029	4												0130	0130	0120	00.8	01.7	00.9	0160	0450	0180	0990	1050
35030	0	1790	0650	2000	2	00.3	00.1	00.3	1	0950	0950	1	2900	1300	2780	00.2	00.3	00.8	0220	0470	0090	0750	0920
35030	M	0150	0090	0160	1	00.4	00.2	00.4	1	0800	0800	1	0350	0050	0450	00.2	00.4	00.2	0090	0420	0100	0760	0780
35030	1												0100	0040	0120	00.2	00.5	00.2				0670	0690
35030	2												0130	0060	0110	00.3	00.4	00.2	0080	0230	0100	0710	0740
35030	3												0150	0070	0110	00.2	00.3	00.2	0080	0310	0090	0610	0690
35030	4												0130	0050	0120	00.2	00.6	00.2	0080	0300	0070	0620	0690
35031	0	0260	0090	0245	1	06.4	02.4	05.5	2	0900	0900	1	0280	0080	0290	08.8	01.9	08.7	0110	0310	0110	0910	0940
35031	M	0160	0160	0170	1	02.9	01.2	02.0	1	0900	0900	1	0240	0090	0260	03.6	00.2	03.0	0040	0180	0040	0920	0940
35031	1												0250	0090	0240	04.8	00.6	03.3				0850	0880
35031	2												0170	0070	0200	00.4	00.4	02.3	0060	0250	0080	0800	0860
35031	3												0160	0080	0170	00.9	00.8	02.4	0080	0260	0110	1120	1080
35031	4												0230	0050	0170	01.0	00.8	01.8	0100	0240	0120	0930	1050
35032	0	0045	0027	0055	1	01.3	00.3	01.0	1	0800	0800	1	0070	0020	0080	01.4	00.3	01.1	0080	0180	0040	0740	0770
35032	M	0040	0015	0140	1	02.2	00.1	01.0	1	0700	0700	1	0140	0050	0090	02.8	00.5	01.9	0060	0160	0060	0600	0640
35032	1												0260	0090	0140	05.7	00.2	05.7				0540	0540
35032	2												0050	0020	0040	01.7	00.3	01.5	0070	0130	0070	1000	1010
35032	3												0100	0040	0060	00.0	00.3	02.1	0060	0170	0070	0870	0940
35032	4												0140	0030	0070	00.4	00.3	02.1	0100	0160	0080	0830	0920

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

	S E Q	D E Q I D L E T E S T												H T S I D L E T E S T										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
35033	0	0025	0025	0035	1	01.3	00.5	01.2	1	1000	1000	1	0040	0020	0030	00.8	00.2	00.9	0080	0200	0080	1140	1120
35033	M	0030	0030	0030	1	01.4	00.1	01.2	1	1050	1050	1	0080	0040	0050	01.3	00.1	00.9	0100	0220	0100	0950	0990
35033	1												0070	0030	0030	01.6	00.1	01.2				0990	0920
35033	2												0490	0100	0110	01.0	00.2	00.9				0990	1030
35033	3												0120	0060	0060	02.4	00.1	01.9	0070	0240	0080	0740	0750
35033	4												0310	0120	0400	02.3	00.1	01.8	0110	0270	0100	0820	0900
35034	0	0430	0195	0355	1	09.1	03.2	08.2	2	0700	0700	1	0280	0080	0280	06.6	00.8	07.2	0100	0200	0100	0860	0820
35034	M	0150	0095	0300	1	00.2	01.1	01.0	1	0700	0700	1	0230	0060	0200	00.4	00.9	00.4	0080	0150	0060	0600	0640
35034	1												0300	0090	0260	01.2	00.7	01.8				0520	0560
35034	2												0470	0100	0420	09.7	02.3	09.8	0100	0190	0110	0660	0720
35034	3												0530	0150	0390	09.9	03.5	09.9	0120	0220	0130	0660	0760
35034	4												0260	0140	0280	06.8	03.1	07.8	0140	0220	0140	1040	0950
35035	0	0215	0255	0295	1	01.9	02.5	02.9	2	0900	0900	1	0360	0270	0380	02.7	04.3	02.3				0980	1040
35035	M	0290	0285	0300	1	01.5	02.9	01.8	1	1000	1000	1	0330	0360	0360	04.3	04.7	02.3	0110	0220	0110	1040	1040
35035	1												0270	0190	0210	02.2	02.9	01.0	0110	0200	0120	0990	1000
35035	2												0440	0330	0310	06.4	06.0	04.2	0120	0240	0160	0800	1120
45001	0	0145	0190	0320	2	00.5	01.9	00.5	2	0900	0900	1	0280	0280	0230	00.1	00.2	00.2				0840	0870
45001	M	0085	0125	0115	1	00.8	01.7	00.7	1	0800	0800	1	0110	0130	0100	00.7	01.3	00.6	0130	0300	0140	1030	0850
45001	1												0190	0120	0140	00.6	01.4	00.7	0160	0250	0160	0690	0930
45001	2												0160	0190	0150	01.4	03.7	00.6				0990	0990
45001	3												0160	0160	0160	00.9	03.5	00.7	0110	0270	0120	0980	1010
45001	4												0210	0160	0180	00.8	02.8	00.9	0090	0180	0060	0850	0880
45002	0	0245	0095	0260	1	05.4	00.6	04.7	2	0750	0800	1	0250	0100	0250	05.1	00.6	04.0				0750	0770
45002	M	0080	0255	0140	1	01.2	00.8	00.1	1	1200	1200	1	0130	0230	0090	00.3	00.6	00.2	0100	0230	0100	0900	0900
45002	1												0130	0190	0130	00.7	00.7	00.8	0160	0320	0170	0980	1020
45002	2												0120	0240	0110	00.6	01.1	01.2				0980	0990
45002	3												0170	0140	0130	02.3	00.7	01.3				0900	0950
45002	4												0090	0160	0080	00.2	00.7	00.5	0090	0150	0130	0940	0970
45003	0	0445	0110	0505	2	08.0	01.3	07.9	2	0450	0500	1	0360	0090	0380	07.0	00.7	07.3				0490	0500
45004	0	0260	0060	0315	1	06.3	00.3	06.1	2	0700	0750	1	0200	0050	0240	04.8	00.2	05.6	0080	0220	0080	0640	0650
45005	0	0210	0110	0245	1	06.0	01.3	05.9	2	0650	0650	1	0170	0080	0150	03.4	00.7	03.0	0120	0500	0120	0680	0700
45005	M	0265	0075	0315	1	02.3	00.8	01.3	1	1000	1000	1	0410	0100	0520	01.1	00.6	00.6	0000	0000	0000	0900	0910
45005	1												0250	0050	0240	01.5	00.6	01.6	0250	0440	0150	0870	0890
45005	2												0530	0120	0670	00.4	00.2	00.5	0110	0230	0100	0860	0870
45005	3												0370	0050	0370	00.3	00.9	00.2				0780	0780
45005	4												0160	0060	0170	02.1	00.4	01.5	0120	0420	0150	0820	[illegible]
45006	0	0445	0095	0765	1	08.8	01.3	08.4	2	0650	0700	1	0270	0090	0250	06.3	01.1	06.2	0160	0160	0160	1000	0980
45006	M	0180	0305	0255	1	01.2	01.6	01.6	1	0700	0700	1	0120	0050	0180	00.2	00.4	01.0	0050	0160	0090	0630	0660
45006	1												0210	0080	0200	01.9	01.0	01.2	0100	0210	0130	0720	0710
45006	2												0180	0090	0250	00.2	01.1	01.2				0700	0700
45006	3												0230	0070	0210	00.9	01.2	01.1	0060	0160	0090	0730	0710
45006	4												0250	0100	0090	02.3	02.0	00.2	0080	0170	0060	0700	0820
45007	0	0125	0505	0200	1	04.0	00.4	03.7	2	0850	0850	1	0180	0590	0170	02.3	00.3	02.5	0120	0500	0130	0740	0830
45007	M	0110	0040	0200	1	00.1	00.1	00.1	1	0700	0700	1	0140	0380	0130	00.1	00.1	00.1	0090	0380	0080	0700	0680
45007	1												0770	0230	0840	09.8	02.2	09.9	0140	0680	0160	0450	0490
45007	2												0270	0270	0260	04.3	01.4	04.5	[illegible]	0240	0120	0630	0670
45007	3												0300	0720	0300	04.3	02.1	03.9				0660	0680
45007	4												0120	0510	0130	02.3	00.5	01.6	0110	0810	0130	0670	0700
45008	0	0135	0085	0140	1	04.6	01.8	03.3	2	0800	0800	1	0140	0100	0160	03.1	01.4	04.0	0120	0380	0140	0780	0790
45008	M	0070	0065	0110	1	01.1	01.8	00.9	1	0800	0800	1	0120	0380	0120	00.2	01.0	00.3	0100	0600	0100	0680	0680
45008	1												0080	0090	0070	00.3	01.8	00.3	0110	0910	0120	0700	0720
45008	2												0080	0060	0090	00.1	00.9	00.1				0650	0720
45009	0	0310	0080	0355	2	09.6	00.7	09.5	2	0700	0700	2	0330	0190	0440	08.3	01.1	08.[illegible]	0080	0580	0090	0650	0620
45009	M	0030	0030	0115	1	00.4	00.2	00.2	1	1000	1000	1	0150	0360	0150	00.1	00.2	00.[illegible]	0140	0300	0090	0730	0780
45009	1												0260	0130	0210	05.4	00.5	06.3	0180	0360	0170	0680	0730
45009	2												0130	0060	0140	04.0	00.4	04.4				0740	0750
45009	3												0120	0040	0120	03.9	00.3	04.3	0125	0460	0425	0800	0800
45009	4												0130	0040	0130	02.3	00.2	03.2	0120	0940	0100	0690	0710
45010	0	0130	0065	0130	1	04.2	01.4	03.8	2	1200	1200	2	0140	0050	0120	03.1	00.1	03.9	0120	0440	0120	0950	1050
45010	M	0215	0070	0180	1	00.2	00.9	00.2	1	1000	1000	1	0170	0060	0090	00.3	01.0	00.5	0130	0410	0160	0850	0950
45010	1												0120	0070	0100	00.3	01.2	00.4	0150	0540	0180	0990	1060
45010	2												0120	0060	0130	00.4	01.0	00.5	0100	0320	0090	0960	1040
45010	3												0140	0070	0100	00.5	01.4	00.7				0940	0990
45010	4												0100	0050	0060	00.3	00.1	00.4	0140	0400	0140	0950	0940
45011	0	0260	0200	0260	1	06.4	07.5	06.4	2	0900	0900	1	0280	0190	0150	06.8	07.5	04.7	0100	0140	0100	0730	0860
45011	M	0420	0510	0615	1	01.6	04.7	00.7	1	0900	0900	1	0920	0160	0880	00.4	04.1	00.3	0100	0200	0080	0820	0850
45011	1												1550	0170	1490	00.1	00.5	00.2	0050	0190	0040	0960	0960
45011	2												1560	0230	1460	00.1	00.6	00.1				0800	0770
45011	3												1430	0120	1240	00.3	00.5	00.2	0040	0080	0050	0910	0900
45011	4												0250	0230	0470	02.0	04.5	00.5	0100	0180	0080	0870	0850
45012	0	0165	0155	0295	1	05.1	04.1	04.9	2	0800	0800	1	0250	0160	0230	02.6	02.4	03.2	0160	0240	0160	0780	0820
45012	M	0060	0135	0090	1	00.2	03.7	00.2	1	0800	0900	1	0130	0140	0090	00.2	02.4	00.3	0060	0080	0060	0690	0790
45012	1												0230	0130	0210	03.8	02.9	04.7	0100	0120	0130	0870	0930
45012	2												0250	0180	0250	05.7	04.6	06.5				0880	0880
45012	3												0110	0120	0100	00.1	01.7	00.1	0040	0110	0060	0600	0600
45012	4												0200	0150	0190	00.2	03.1	00.2	0070	0160	0090	0670	0680
45013	0	0180	0055	0240	1	02.7	00.4	03.2	2	0700	0700	1	0320	0090	0190	01.1	00.6	02.0	0100	0240	0120	0630	0660
45013	M	0120	0085	0125	1	00.1	00.6	00.2	1	0700	0700	1	0130	0070	0100	00.5	00.6	00.3	0100	0320	0100	0660	0660
45013	1												0250	0110	0230	05.4	01.0	05.6	0150	0360	0150	0700	0740
45013	2												0320	0100	0330	06.7	01.2	06.8				0720	0720
45013	3												0230	0060	0220	04.6	00.5	04.8	0110	0320	0120	0700	0730
45013	4												0440	0140	0420	08.2	01.1	07.6	0120	0240	0120	0600	0710
45014	0	0205	0125	0210	1	06.9	02.2	05.6	2	1200	1200	1	0300	0120	0240	06.7	01.0	06.6	0120	0220	0140	1200	1250
45014	M	0120	0145	0125	1	02.6	00.6	01.8	1	0650	0650	1	0320	0350	0250	02.4	00.4	02.9	0120	0280	0130	0840	0900
45014	1												0210	0360	0240	02.9	00.7	02.9	0130	0290	0130	0780	0810
45014	2												0250	0380	0230	03.1	00.6	02.4	0080	0180	0090	0840	0850
45014	3												0270	0130	0250	01.8	00.5	01.6				0770	0810
45014	4												0360	0220	0360	03.9	01.6	04.3	0120	0260	0140	1030	1050

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

EPANO	SEQ	DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
45015	0	0315	0125	0400	1	06.9	03.9	08.6	2	0700	0700	1	0210	0130	0230	04.4	03.6	05.2	0030	0150	0050	0620	0710
45015	M	0075	0095	0300	1	00.6	02.0	00.7	1	0700	0700	1	0520	0120	0800	00.2	01.3	00.2	0040	0210	0050	0730	0780
45015	1												0330	0100	0120	00.1	02.3	00.1	0040	0240	0060	0960	0980
45015	2												0140	0090	0100	01.3	02.1	01.2				0950	1010
45015	3												0120	0100	0060	00.2	03.0	00.1				0980	0990
45015	4												0400	0220	0890	00.3	01.7	00.2	0040	0200	0040	0770	0650
45016	0	0295	0105	0350	1	05.2	02.1	05.7	2	0550	0550	1	0260	0100	0240	05.3	02.2	05.6	0090	0290	0100	0590	0620
45016	M	0105	0080	0115	1	00.3	01.3	00.4	1	0800	0800	1	0220	0080	0060	00.2	01.0	00.2	0090	0310	0100	0710	0790
45016	1												0080	0100	0050	00.5	01.6	00.3	0110	0350	0110	0750	0770
45016	2												0080	0110	0080	00.5	01.6	00.4				0750	0810
45016	3												0150	0140	0140	02.4	01.7	01.5	0080	0250	0080	0740	0760
45016	4												0190	0150	0190	03.9	02.2	04.0	0080	0380	0090	0920	0980
45017	0	1360	0575	1330	2	01.5	00.8	01.6	1	0900	0900	1	1050	0140	1100	01.8	00.2	01.8	0080	0200	0090	0850	0950
45017	M	0115	0075	0130	1	01.9	00.5	02.3	1	1100	1100	1	1100	0120	0420	00.4	00.2	01.1	0100	0290	0120	0800	0940
45017	1												0280	0050	0220	02.0	00.1	02.3	0130	0360	0150	0910	0910
45017	2												0310	0100	0290	02.1	00.2	02.2				0900	0960
45018	0	0090	0075	0170	1	03.6	00.4	03.8	2	0700	0750	1	0210	0050	0110	01.0	00.3	01.0	0100	0460	0110	0550	0650
45018	M	0105	0100	0180	1	01.2	00.2	01.2	1	0850	0850	1	0150	0060	0140	00.6	00.3	02.0	0100	0580	0130	0710	0780
45018	1												0230	0090	0140	01.3	00.3	01.4	0070	0580	0080	0760	0760
45018	2												0510	0100	0210	01.5	00.6	02.1				0690	0740
45018	3												0160	0060	0150	00.9	00.3	01.5	0080	0520	0110	0610	0670
45018	4												0920	0350	0810	03.0	00.7	01.1				0660	0670
45019	0	0245	0100	0240	1	07.6	00.8	07.7	2	0900	0900	1	0220	0080	0220	05.5	00.3	06.5	0150	1200	0150	0840	0910
45019	M	0070	0035	0055	1	00.3	00.1	00.1	1	0950	1000	1	0100	0060	0060	00.1	00.2	00.1	0090	0460	0080	0690	0690
45019	1												0080	0070	0080	00.3	00.2	00.4	0100	0480	0090	0740	0770
45019	2												0080	0060	0080	00.1	00.4	00.1				0760	0810
45019	3												0050	0050	0060	00.1	00.2	00.3	0110	0540	0130	0730	0780
45019	4												0120	0060	0080	00.2	00.2	00.3	0100	0700	0120	0720	0780
45020	0	0240	0060	0195	1	06.4	00.7	05.4	2	0750	0750	1	1930	0440	2030	00.9	00.5	01.0	0070	0280	0080	0830	0850
45020	M	0160	0090	0135	1	01.1	01.6	00.4	1	0800	0800	1	0140	0060	0090	00.3	01.0	00.3	0060	0150	0070	0720	0800
45020	1												0220	0080	0190	04.5	01.6	04.5				0800	0800
45020	2												0410	0100	0230	07.7	01.5	06.1				0640	0720
45020	3												0080	0080	0060	00.1	01.1	00.1	0060	0340	0070	0920	0980
45020	4												0030	0080	0080	00.2	01.8	01.5	0100	0250	0160	0980	1720
45021	0	0950	0180	0350	1	08.2	06.0	06.1	2	0950	0700	1	0120	0120	0100	02.6	02.5	02.7	0090	0300	0100	0770	0770
45021	M	0065	0045	0145	1	00.1	01.6	00.1	1	0700	0700	1	0180	0100	0060	00.1	01.8	00.1	0040	0160	0060	0630	0660
45021	1												0090	0110	0080	00.2	02.4	00.2	0090	0330	0080	0700	0700
45021	2												0140	0120	0170	00.4	00.2	00.5				0930	0850
45021	3												0110	0120	0170	01.9	02.2	00.8	0150	0350	0150	1000	0810
45021	4												0380	0100	0130	00.4	04.2	00.6	0110	0220	0120	0630	0660
45022	0	0020	0015	0140	1	00.6	00.1	00.7	1	0900	0900	1	0050	0020	0020	00.1	00.0	00.2	0060	0120	0070	0740	0880
45022	M	0045	0040	0045	1	01.0	00.2	01.0	1	0800	0800	1	0050	0030	0050	00.1	00.1	00.4	0120	0290	0160	0700	0820
45022	1												0100	0020	0050	00.1	00.1	00.1				0680	0800
45022	2												0090	0020	0050	00.1	00.3	00.1				0620	0690
45022	3												0550	0050	0260	00.2	00.1	00.1	0080	0340	0100	0680	0720
45022	4												0170	0030	0160	00.2	00.3	00.1	0100	0400	0090	0600	0710
45023	0	1545	0160	1420	2	01.5	00.1	01.0	1	0700	0700	1	1950	0250	2200	01.5	00.1	01.0	0040	0130	0050	0650	0720
45023	M	0055	0025	0055	1	00.8	00.1	00.1	1	0900	0900	1	0050	0020	0040	00.4	00.1	00.3	0120	0260	0120	0820	0840
45023	1												0090	0030	0070	00.3	00.1	00.5	0120	0230	0130	0750	0820
45023	2												0220	0050	0080	00.1	00.1	00.1				0670	0760
45023	3												0100	0020	0110	02.3	00.0	02.8	0090	0160	0120	0710	0740
45023	4												0120	0020	0110	01.8	00.0	02.6	0110	0170	0140	0640	0700
45024	0	0080	0050	0090	1	02.7	01.4	02.7	2	0850	0900	1	0160	0080	0090	01.0	01.7	01.7	0090	0180	0100	0730	0810
45024	M	0060	0055	0060	1	01.4	01.2	01.3	1	0800	0800	1	0050	0030	0060	00.3	00.5	00.4	0150	0220	0150	0690	0730
45024	1												0120	0050	0120	00.3	01.1	00.4				0650	0720
45024	2												0100	0130	0100	01.1	01.7	01.6				0740	0760
45024	3												0160	0090	0180	01.0	01.4	01.2	0110	0320	0110	0770	0760
45024	4												0050	0050	0070	00.3	00.8	00.5	0140	0300	0130	0960	0760
45025	0	0315	0350	0320	1	08.0	06.5	08.0	2	1500	1500	2	0310	0240	0300	07.3	07.6	07.9	0160	0240	0160	1310	1390
45025	M	0270	0130	0155	1	00.1	02.8	00.1	1	1000	1000	1	0200	0170	0170	00.2	03.8	00.2	0040	0270	0050	1020	1000
45025	1												0300	0250	0280	05.8	07.8	06.0	0120	0150	0100	1310	1410
45025	2												0130	0170	0120	00.2	04.9	00.8				0730	0830
45025	3												0150	0200	0160	03.3	07.3	02.0	0100	0170	0090	0970	0900
45025	4												0090	0120	0080	01.7	03.9	01.1	0120	0200	0100	0990	0880
45026	0	0095	0060	0650	1	04.8	02.8	04.2	2	1050	1050	1	0120	0060	0120	04.3	02.1	05.5	0140	0300	0140	1040	1010
45026	M	0065	0065	0085	1	01.9	02.6	02.1	1	1000	1000	1	0070	0030	0070	01.6	01.1	02.4	0150	0420	0160	0820	0870
45026	1												0050	0040	0050	00.5	02.1	00.7	0120	0240	0130	0880	0890
45026	2												0070	0050	0050	00.6	01.8	00.8				0870	0890
45026	3												0080	0050	0050	00.8	01.7	01.5	0160	0370	0180	0770	0880
45026	4												0050	0050	0060	00.8	02.3	00.9	0160	0270	0160	0980	1040
45027	0	0315	0195	0310	1	02.6	02.5	02.9	1	1600	1600	2	0320	0130	0300	03.7	02.1	04.0	0140	0240	0150	1430	1590
45027	M	0110	0080	0195	1	01.4	00.3	00.8	1	0950	0950	1	0170	0050	0190	01.6	00.2	00.6	0140	0260	0140	0860	0870
45027	1												0350	0120	0270	00.3	00.1	01.5				0830	0830
45027	2												0550	0080	0230	01.5	00.1	01.8	0070	0120	0080	0690	0830
45027	3												0410	0130	0230	00.7	00.2	00.6	0050	0220	0060	0720	0750
45027	4												0200	0040	0140	03.1	00.1	03.2	0120	0230	0120	0800	0840
45028	0	0725	0485	0605	2	08.7	05.1	08.1	2	0650	0650	1	0310	0140	0300	03.9	02.6	06.3	0140	0350	0150	0700	0730
45028	M	0220	0150	0400	1	00.1	02.3	00.1	1	0750	0800	1	0230	0110	0250	00.1	02.5	00.1	0130	0430	0170	0690	0690
45028	1												0220	0140	0170	00.2	03.1	00.2	0080	0260	0100	0700	0700
45028	2												0450	0140	0190	00.2	02.8	00.2				0650	0710
45028	3												0910	0190	0290	00.2	03.3	00.2	0020	0240	0040	0600	0720
45028	4												1370	0190	1200	00.2	03.0	00.2	0050	0260	0040	0460	0550
45029	0	0250	0145	0305	1	06.5	02.5	06.3	2	1000	1000	1	0300	0110	0320	05.9	01.3	06.6	0150	0380	0150	0940	0950
45029	M	0320	0195	0255	1	07.4	03.6	03.3	1	0800	0800	1	0360	0160	0310	03.4	00.2	03.8	0090	0330	0110	0620	0750
45029	1												0600	0130	0420	02.4	00.2	03.9				0670	0730
45029	2												0270	0100	0230	05.6	00.2	05.8	0120	0260	0140	1010	1060
45029	3												0270	0120	0190	01.4	00.3	01.4	0160	0400	0160	0950	0910
45029	4												0240	0070	0190	00.8	00.5	00.7	0110	0310	0100	0790	0890

APPENDIX B - IDLE TEST RESULTS

1972 - 74 PORTLAND FAIL

EPANO	SEQ	DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
45030	0	0090	0025	0205	1	01.4	00.7	01.4	2	0500	0500	1	0220	0070	0130	01.0	00.2	01.1	0060	0100	0080	0490	0530
45030	M	0050	0030	0070	1	00.1	00.6	00.1	1	0750	0750	1	0390	0050	0090	00.1	00.4	00.1				0650	0680
45030	1												0360	0030	0060	00.1	00.2	00.2				0680	0760
45030	2												0380	0030	0060	00.1	00.0	00.2	0080	0280	0100	0750	0800
45030	3												0150	0040	0050	00.6	00.4	00.1	0050	0120	0080	0410	0740
45030	4												0360	0020	0060	00.2	00.4	00.2	0090	0400	0100	0630	0650
45031	0	0270	0210	0290	1	00.2	01.5	00.2	1	1400	1400	2	0390	0150	0350	03.2	00.5	02.4				0910	0960
45031	M	0185	0210	0610	1	04.3	02.8	02.9	1	0900	0900	1	0310	0120	0260	03.5	01.0	02.6				0810	0860
45031	1												0270	0090	0260	02.0	00.4	02.2	0090	0250	0100	0610	0620
45031	2												0290	0100	0270	01.7	01.0	01.9	0120	0210	0120	0740	0770
45032	0	0500	0470	0645	2	00.6	00.7	00.3	1	0800	0800	1	0540	0100	0570	00.5	00.2	00.8	0050	0190	0060	0710	0800
45033	0	0205	0090	0240	1	06.6	00.6	06.5	2	0900	0900	1	0240	0100	0230	05.5	00.2	05.9	0140	0500	0140	0800	0840
45033	M	0120	0070	0085	1	00.3	00.4	00.2	1	0900	0900	1	0120	0140	0090	00.4	00.2	00.3	0130	0440	0130	0820	0830
45033	1												0270	0190	0240	07.3	01.0	04.7	0130	0660	0130	0880	0940

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

	S	D E Q I D L E T E S T											M T S I D L E T E S T										
	E	HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	Q	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
56001	0	1245	0260	1620	2	12.0	01.9	11.7	2	0400	0400	2	0910	0200	1140	09.9	01.0	09.9	0060	0220	0080	0470	0420
56002	0	0105	0035	0120	1	01.6	00.1	02.1	2	0700	0700	1	0160	0040	0160	00.0	00.2	00.0	0050	0275	0080	0570	0610
56002	M	0075	0020	0075	1	01.4	00.0	01.3	1	0900	0900	1	0060	0020	0060	00.8	00.0	00.9	0000	0000	0000	0790	0820
56002	1												0080	0030	0050	00.8	00.0	00.1	0120	0260	0080	0780	0800
56002	2												0100	0030	0080	01.5	00.0	01.0				0780	0800
56002	3												0070	0030	0050	00.0	00.0	00.0				0690	0730
56002	4												0120	0050	0110	01.3	00.0	01.7	0090	0240	0110	0790	0830
56003	0	0145	0115	0180	1	05.0	00.6	05.2	2	1000	1000	1	0160	0040	0160	03.9	00.0	04.8	0120	0150	0140	0870	1060
56003	M	0035	0035	0150	1	00.1	00.0	00.0	1	0800	0800	1	0100	0030	0090	00.4	00.0	00.6	0080	0140	0100	0630	0700
56003	1												0070	0020	0080	00.2	00.0	00.7	0110	0160	0130	0740	0760
56003	2												0060	0020	0050	00.1	00.0	00.4	0040	0060	0050	0700	0750
56003	3												0190	0040	0200	05.5	00.0	05.9				0790	0840
56003	4												0300	0080	0290	08.7	00.0	09.1	0120	0160	0130	0780	0790
56004	0	0055	0025	0060	2	01.9	00.2	01.9	2	0900	1000	2	0050	0030	0050	01.4	00.1	01.3	0040	0080	0030	1000	0980
56004	M	0080	0025	0075	1	01.4	00.2	01.2	1	0700	0800	1	0100	0020	0050	01.0	00.1	00.9	0030	0090	0040	0670	0810
56004	1												0050	0010	0040	01.1	00.1	01.1	0030	0130	0040	0830	0910
56004	2												0080	0030	0080	01.9	00.1	01.9				0890	0920
56004	3												0170	0050	0170	02.7	00.1	02.5				0630	0910
56004	4												0040	0020	0040	00.7	00.0	00.7	0040	0040	0030	0910	0950
56005	0	0345	0725	0345	2	00.0	00.0	00.0	1	0900	1000	1	0700	0720	0460	00.0	00.0	00.0	0090	0140	0090	0800	0860
56005	M	0425	0090	0305	1	00.0	00.0	00.0	1	1050	1050	1	0600	0100	0610	00.0	00.0	00.0	0050	0140	0050	0640	0730
56005	1												0620	0130	0560	00.8	00.0	01.6	0130	0170	0120	0760	0780
56005	2												0510	0080	0610	04.7	00.0	05.6				0790	0780
56005	3												0590	0100	0720	06.2	00.0	05.8				0820	0830
56005	4												0950	0120	1050	08.2	00.0	08.1	0140	0180	0100	0710	0750
56006	0	0150	0040	0160	1	02.9	00.0	03.2	2	0700	0700	1	0180	0050	0190	04.0	00.7	04.2	0125	0900	0130	0650	0650
56006	M	0090	0050	0140	1	00.6	00.1	00.9	1	0800	0800	1	0030	0020	0040	00.0	00.0	00.0	0180	0960	0170	0660	0690
56006	1												0020	0020	0010	00.0	00.0	00.0	0190	1000	0060	0720	0720
56006	2												0050	0080	0030	00.0	02.0	00.0				0700	0750
56006	3												0100	0070	0080	00.9	00.4	00.4	0140	0720	0120	0760	0760
56006	4												0120	0100	0130	00.8	00.0	01.3	0200	1050	0210	0800	0810
56007	0	0240	0065	0205	1	04.2	00.8	04.1	2	1000	1050	1	0220	0080	0140	02.8	00.5	02.3				0900	0990
56007	M	0165	0050	0120	1	01.3	00.1	00.7	1	1050	1050	1	0190	0080	0130	00.5	00.2	00.6	0110	0200	0140	0940	0080
56007	1												0210	0090	0220	01.3	00.3	01.5	0090	0240	0100	0810	0840
56007	2												0140	0060	0140	00.5	00.2	00.6				1090	1160
56007	3												0200	0080	0150	01.2	00.3	01.2	0110	0200	0110	1250	1400
56007	4												0250	0090	0270	02.6	00.5	02.6	0130	0170	0150	1120	1260
56008	0	0250	0145	0345	2	08.5	02.3	08.6	2	0850	0850	1	0240	0100	0250	07.2	02.4	08.9	0140	0540	0140	0810	0800
56008	M	0075	0065	0105	1	00.6	01.4	00.6	1	0750	0750	1	0090	0070	0090	00.2	01.8	00.7	0160	0530	0180	0590	0650
56008	1												0100	0080	0090	00.9	02.1	01.4	0140	0560	0150	0910	0710
56008	2												0080	0060	0090	00.4	02.7	00.6				0640	0690
56008	3												0090	0050	0090	00.1	00.9	00.3	0080	0190	0120	0620	0660
56008	4												0120	0100	0360	02.7	00.7	06.7	0160	0300	0140	0750	0730
56009	0	0040	0020	0055	2	00.7	00.4	00.6	2	1100	1100	1	0100	0020	0050	00.9	00.4	00.6	0050	0060	0050	0900	1120
56009	M	0055	0045	0125	1	00.1	00.4	00.1	1	1100	1100	1	0090	0030	0080	00.2	00.5	00.1	0060	0080	0050	0960	1040
56009	1												0090	0030	0080	00.3	00.6	00.2	0070	0090	0060	0950	0020
56009	2												0090	0030	0090	00.1	00.5	00.1				0950	1000
56009	3												0110	0040	0120	00.1	00.4	00.1	0050	0080	0050	0900	0980
56010	0	0065	0045	0075	1	02.9	00.4	02.8	2	1000	1000	1	0140	0080	0100	02.2	00.2	02.7	0060	0100	0060	0980	1000
56010	M	0055	0075	0070	1	01.9	00.1	02.0	1	1100	1100	1	0050	0060	0070	00.9	00.2	01.4	0090	0100	0080	1020	1010
56011	0	0025	0025	0025	1	00.4	00.4	00.4	1	2000	2000	2	0070	0040	0030	00.3	00.5	00.4	0100	0100	0100	1010	1920
56011	M	0080	0040	0140	1	00.2	00.3	00.6	1	0900	0900	1	0120	0050	0100	00.2	00.4	00.4	0080	0120	0070	0580	0610
56011	1												0090	0030	0090	00.4	00.3	00.3	0130	0170	0130	0910	0910
56011	2												0130	0050	0120	00.4	00.6	00.4				0870	0870
56011	3												0100	0050	0100	00.2	00.0	00.3				0890	0880
56011	4												0050	0020	0040	00.0	00.1	00.1	0060	0110	0060	0820	0860
56013	0	0400	0340	0395	2	08.6	04.1	08.1	2	0900	0900	1	0500	0250	0370	09.3	03.5	08.3	0110	0290	0110	0840	0890
56013	M	0100	0200	0095	1	01.5	05.0	00.1	1	0800	0800	1	0030	0120	0030	00.0	01.0	00.0	0090	0340	0110	0680	0680
56013	1												0100	0060	0050	00.0	00.5	00.0	0080	0340	0090	0720	0780
56013	2												0090	0120	0070	00.0	01.6	00.0				0750	0770
56013	3												0080	0140	0080	00.0	01.9	00.0	0060	0300	0060	0830	0780
56013	4												0090	0190	0100	00.1	03.0	00.1	0080	0320	0090	0750	0770
56014	0	0195	0075	0210	1	03.5	00.2	03.0	2	0700	0700	1	0140	0070	0380	00.0	00.0	00.5	0040	0140	0040	0600	0660
56014	M	0065	0060	0070	1	00.0	00.0	00.0	1	0750	0750	1	0140	0050	0070	00.0	00.0	00.0	0090	0130	0080	0640	0710
56014	1												0500	0100	0420	00.2	00.2	00.4	0080	0200	0090	0690	0720
56014	2												0120	0020	0080	00.0	00.0	00.0				0680	0710
56014	3												0120	0020	0110	01.5	00.0	01.1	0080	0190	0090	0810	0830
56014	4												0080	0050	0080	00.0	00.0	00.0	0080	0180	0070	0770	0820
56015	0	0160	0060	0225	2	05.1	00.4	04.3	2	0900	0900	1	0220	0050	0160	03.6	00.0	03.4	0120	0280	0130	0760	0820
56015	M	0060	0035	0080	1	00.7	00.0	00.1	1	0950	0900	1	0080	0010	0060	00.0	00.0	00.0	0090	0190	0090	0740	0770
56015	1												0100	0010	0050	00.0	00.0	00.0	0070	0230	0080	0690	0780
56015	2												0130	0040	0090	00.0	00.0	00.0				0790	0820
56015	3												0050	0010	0030	00.0	00.0	00.0	0050	0060	0060	0800	0810
56015	4												0160	0050	0090	00.9	00.0	00.0	0070	0240	0100	0830	0850
56016	0	0260	0095	0240	2	00.0	00.1	00.0	1	0900	0900	1	0380	0060	0400	00.0	00.2	00.0	0100	0300	0080	0970	0920
56016	M	0180	0145	0190	1	00.1	00.6	00.1	1	1100	1100	1	0280	0110	0250	00.0	00.6	00.0	0060	0240	0070	1040	1060
56016	1												0300	0160	0300	00.1	01.6	00.1	0070	0240	0070	0920	0930
56016	2												0510	0820	0740	03.7	02.0	02.6				1210	1200
56016	3												0510	0200	0480	07.4	03.6	06.5	0110	0180	0110	1070	1070
56016	4												1240	0330	1630	09.1	02.9	09.1	0120	0350	0140	0850	0770
56017	0	0205	0840	0370	1	01.7	00.3	01.9	2	1050	1050	1	0380	1100	0420	00.2	00.7	01.1	0090	0190	0100	0880	0980
56017	M	0090	0120	0080	1	00.0	00.0	00.0	1	0950	0950	1	0210	0310	0090	00.0	00.0	00.0	0020	0060	0030	0840	0860
56017	1												0060	0060	0060	00.0	01.4	00.0	0080	0180	0100	0800	0850
56017	2												0160	0060	0140	00.0	01.2	00.9				0700	0840
56017	3												0160	0070	0120	00.4	01.0	00.4	0090	0180	0100	0730	0790
56017	4												0110	0050	0100	00.4	00.7	00.8	0090	0200	0120	0840	0950
56018	0	0300	0175	0330	2	04.6	00.2	04.8	2	0750	0750	1	0390	0080	0290	05.1	00.1	04.4	0120	0190	0110	0700	0740
56018	M	0075	0070	0110	1	00.5	03.3	00.2	1	0950	0950	1	0090	0100	0130	00.2	02.8	00.1				0960	0940
56018	1												0520	0380	0980	00.0	00.5	00.2				0550	0740
56018	2												0510	0060	0250	00.1	00.6	00.1	0070	0140	0090	0880	0870
56018	3												0230	0030	0190	00.0	00.7	00.0	0100	0250	0110	0960	0980
56018	4												0100	0020	0200	00.0	00.5	00.1	0095	0190	0090	0990	1000

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

```
       S
       E  ---------U E Q    I D L E     T E S T----------   -------------H T S     I D L E       T E S T-----------------
EPANO  Q  --------HC------  --------CO-------  ----RPM---   -----HC-------  ------CO------  -----NOX------  --RPM---
          1ST  2500 2ND S   1ST  2500 2ND S   1ST  2ND S    1ST  2500 2ND   1ST  2500 2ND   1ST  2500 2ND   1ST  2ND
56019 0  0150 0050 0165 1 03.4 00.0 03.0 2 0500 0500 1   0140 0020 0140 01.4 00.0 02.5 0120 0180 0120 0600 0620
56019 M  0163 0025 0150 1 00.0 00.0 00.6 1 0600 0650 1   0090 0010 0030 00.0 00.0 00.1 0060 0120 0040 0610 0650
56019 1                                                  0030 0020 0030 00.0 00.0 00.0 0080 0180 0090 0630 0630
56019 2                                                  0040 0020 0030 00.0 00.0 00.0                0580 0650
56019 3                                                  0060 0020 0050 00.0 00.0 00.0 0060 0125 0080 0630 0670
56019 4                                                  0080 0020 0050 00.0 00.1 00.0 0100 0200 0110 0560 0600

56020 0  0265 0270 0280 2 00.0 00.0 00.0 1 0700 0700 1   0330 0100 0130 00.0 00.0 00.0 0090 0180 0100 0680 0790
56020 M  0040 0070 0055 1 00.0 00.0 00.0 1 0800 0800 1   0370 0050 0030 00.0 00.0 00.0 0090 0170 0090 0690 0770
56020 1                                                  0470 0160 0200 00.2 00.3 00.1 0070 0180 0080 0780 0800
56020 2                                                  0490 0180 0400 00.0 00.0 00.0                0630 0780
56020 3                                                  0100 0030 0100 00.0 00.0 00.0 0070 0170 0070 0680 0800
56020 4                                                  0390 0020 0040 00.0 00.0 00.0 0080 0280 0090 0700 0770

56021 0  0095 0020 0115 1 04.0 00.1 04.3 2 1500 1600 2   0160 0030 0120 03.3 00.0 02.7 0080 0440 0090 1000 1120
56021 M  0020 0040 0020 1 00.0 00.0 00.0 1 1100 1100 1   0380 0050 0020 00.0 00.0 00.0 0050 0170 0060 0910 1100
56021 1                                                  0330 0020 0030 00.0 00.0 00.0 0060 0260 0080 0800 0790
56021 2                                                  0240 0100 0270 05.8 00.9 05.6                0710 0690
56021 3                                                  0120 0030 0080 01.6 00.0 00.9 0090 0280 0085 0760 0800
56021 4                                                  0120 0030 0120 00.3 00.0 00.4 0040 0160 0050 0700 0710

56022 0  0110 0040 0115 1 01.8 00.1 01.7 2 0900 0900 1   0200 0060 0170 01.0 00.1 01.4 0090 0220 0090 0760 0850
56022 M  0045 0030 0040 1 00.0 00.0 00.0 1 0900 0900 1   0390 0030 0050 00.3 00.1 00.1 0090 0220 0070 0850 0820
56022 1                                                  0180 0030 0140 00.3 00.2 00.6 0080 0260 0090 0730 0790
56022 2                                                  0110 0020 0050 00.0 00.0 00.0                0710 0770

56023 0  0400 0385 0440 2 00.5 00.0 01.5 1 0900 0900 1   0200 0270 0080 00.0 00.0 00.0 0050 0130 0050 0820 0770
56023 M  0045 0075 0120 1 00.0 00.1 00.0 1 0850 0850 1   0370 0190 0040 00.0 00.0 00.0 0060 0120 0050 0770 0830
56023 1                                                  0370 0170 0060 00.0 00.0 00.0                0810 0810
56023 2                                                  0350 0230 0520 00.1 00.0 00.6                0780 0830
56023 3                                                  0130 0330 0120 00.0 00.0 00.0 0060 0140 0050 0780 0840
56023 4                                                  0440 0190 0260 00.2 00.5 00.1 0080 0110 0060 0700 0780

56024 0  0085 0045 0080 1 01.5 00.1 01.4 2 0850 0850 1   0110 0030 0070 02.0 00.1 01.4 0060 0190 0060 0690 0780
56024 M  0065 0040 0075 1 00.1 00.1 00.1 1 0700 0700 1   0100 0040 0070 00.2 00.1 00.4 0080 0180 0080 0690 0700
56024 1                                                  0120 0030 0080 01.1 00.1 00.6 0040 0160 0040 0680 0680
56024 2                                                  0080 0030 0070 00.3 00.1 00.3                0650 0680
56024 3                                                  0080 0030 0060 00.6 00.1 00.6 0060 0190 0080 0780 0810
56024 4                                                  0140 0060 0090 01.0 00.3 00.6 0080 0250 0070 0750 0760

56025 0  0000 0000 0000   00.0 00.0 00.0   2800 2800 2   0120 0060 0080 00.8 00.3 00.8 0070 0210 0060 1040 1140
56025 M  0085 0315 0115 1 00.9 00.6 00.9 1 0900 0900 1   0140 0080 0120 01.0 00.3 00.8 0050 0180 0060 0750 0760
56025 1                                                  0130 0050 0110 00.9 00.2 00.9                0710 0740
56025 2                                                  0100 0060 0140 00.9 00.1 01.1                1200 0730
56025 3                                                  0120 0060 0110 00.9 00.1 00.8 0100 0440 0080 1150 0850
56025 4                                                  0240 0080 0080 00.8 00.1 00.6 0060 0240 0060 0660 1280

56026 0  0445 0100 0390 2 01.8 01.9 02.3 2 0650 0650 1   0410 0040 0310 00.4 00.8 00.5 0060 0170 0070 0660 0660
56026 M  0105 0065 0085 1 00.0 00.4 00.0 1 0800 0800 1   0350 0010 0020 00.0 00.3 00.0 0095 0120 0045 0790 0790
56026 1                                                  0130 0080 0090 00.0 01.1 00.0 0060 0110 0070 0730 0740
56026 2                                                  0570 0080 0420 00.2 01.1 00.5                0700 0790
56026 3                                                  0550 0050 0480 00.3 01.0 00.3 0080 0150 0080 0780 0770
56026 4                                                  0930 0080 0780 00.2 00.5 00.3 0040 0250 0040 0620 0670

56027 0  0295 0160 0295 2 02.2 04.4 03.3 2 0650 0650 1   0280 0120 0310 00.4 02.7 00.4 0070 0065 0060 0740 0730

56028 0  0455 0105 0400 2 00.1 00.1 00.1 1 0850 0830 1   0560 0080 0810 00.2 00.1 00.1 0070 0180 0060 0780 0780
56028 M  0070 0055 0100 1 00.0 00.1 00.0 1 0950 0950 1   0400 0050 0340 00.1 00.1 00.1 0060 0220 0060 0960 1000
56028 1                                                  0400 0090 0380 00.1 00.1 00.1                0820 0830
56028 2                                                  0920 0090 0750 00.1 00.1 00.1                1000 1030
56028 3                                                  0950 0120 0830 00.1 00.1 00.1 0060 0130 0080 0900 1010
56028 4                                                  0150 0060 0120 00.6 00.2 00.5 0060 0180 0070 0890 0950

56029 0  0020 0055 0045 1 00.0 00.0 00.0 1 1250 1250 2   0060 0020 0020 00.0 00.0 00.0 0070 0110 0080 1030 1180
56029 M  0035 0045 0075 1 00.0 01.7 00.1 1 0700 0700 1   0050 0010 0030 00.0 00.0 00.0 0060 0140 0060 0560 0590
56029 1                                                  0190 0050 0120 00.0 00.1 00.0                0750 0810
56029 2                                                  0100 0060 0090 00.0 00.0 00.0                0800 0820
56029 3                                                  0390 0030 0090 00.0 00.1 00.4 0080 0170 0090 0830 0950
56029 4                                                  0390 0030 0050 00.0 00.0 00.0 0060 0200 0100 0670 0770

56030 0  0155 0170 0170 1 04.6 04.6 04.4 2 0850 0850 1   0160 0050 0120 04.0 04.2 04.4 0070 0340 0080 0680 0700
56030 M  0225 0070 0300 1 00.3 01.0 00.2 1 0700 0700 1   0450 0070 0420 00.2 00.6 00.3 0080 0340 0080 0610 0620
56030 1                                                  0370 0390 0740 00.3 00.3 00.2                0550 0540
56030 2                                                  0400 0090 0400 00.5 00.5 00.4                0590 0600
56030 3                                                  0260 0140 0200 01.1 01.2 00.9 0080 0360 0080 0680 0740
56030 4                                                  0200 0130 0130 00.9 01.4 01.8 0120 0380 0150 0830 0860

56031 0  0045 0030 0040 1 01.3 00.1 01.2 2 0900 0900 1   0050 0020 0030 00.8 00.0 00.5 0070 0260 0080 0830 0860
56031 M  0020 0015 0025 1 00.3 00.0 00.3 1 0900 0900 1   0040 0020 0030 00.5 00.1 00.6 0070 0310 0080 0760 0800
56031 1                                                  0030 0010 0020 00.5 00.0 00.5                0820 0830
56031 2                                                  0060 0020 0050 00.7 00.1 00.7                0720 0770
56031 3                                                  0070 0030 0050 00.9 00.0 00.5 0080 0240 0100 0720 0860
56031 4                                                  0020 0010 0020 00.5 00.0 00.5 0100 0430 0120 0760 0770

56032 0  0245 0165 0255 2 05.3 03.8 04.5 2 0700 0700 1   0250 0170 0220 03.1 02.9 03.8 0140 0350 0130 0670 0690
56032 M  0110 0080 0135 1 00.6 00.6 00.8 1 0900 0900 1   0060 0020 0030 00.1 00.0 00.0 0120 0420 0090 0860 0860
56032 1                                                  0200 0080 0170 00.5 00.3 00.4 0120 0310 0090 0950 0930
56032 2                                                  0270 0100 0160 00.9 00.4 00.5                1020 1020
56032 3                                                  0380 0160 0200 06.6 00.9 01.[illegible] 0140 0380 0160 0650 0580
56032 4                                                  0250 0090 0240 00.6 00.3 00.8 0140 0370 0140 0750 0770

56033 0  0350 0120 0375 2 04.3 01.0 04.4 2 0800 0800 1   0400 0240 0360 03.8 03.0 04.4 0130 0410 0140 0740 0750
56033 M  0075 0040 0115 1 00.0 00.1 00.0 1 0800 0800 1   0150 0020 0160 00.0 00.0 00.0 0100 0420 0110 0810 0780
56033 1                                                  0210 0050 0230 00.0 00.0 00.0                0800 0820

56034 0  0080 0070 0110 1 01.6 00.5 01.1 2 0900 0900 1   0100 0060 0080 00.0 00.7 00.0                0740 0730
56034 M  0040 0035 0030 1 00.1 00.1 00.0 1 0800 0800 1   0370 0060 0040 00.1 00.3 00.0                0730 0730
56034 1                                                  0120 0080 0120 00.5 00.0 00.6 0100 0560 0100 0740 0770
56034 2                                                  1580 1140 1790 00.3 00.2 00.1 0100 0660 0100 0850 0850
56034 3                                                  0120 0090 0100 00.6 00.4 00.9 0140 0520 0140 0810 0860

56035 0  0870 0720 0870 2 00.1 00.2 00.1 1 0800 0800 1   1220 0230 0910 00.2 00.1 00.1                0740 0720
56035 M  0030 0125 0325 1 00.6 00.5 00.7 1 0800 0800 1   0040 0010 0030 00.5 00.3 00.2                0730 0750
56035 1                                                  0080 0050 0050 00.4 00.1 00.1 0070 0140 0090 0690 0730
56035 2                                                  0350 0020 0030 00.5 00.7 00.3 0120 0170 0120 0670 0680
56035 3                                                  0010 0010 0020 00.0 00.1 00.0 0050 0130 0060 0780 0800
56035 4                                                  0040 0020 0060 00.1 00.1 00.0 0090 0150 0100 0820 0770
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                              APPENDIX B - IDLE TEST RESULTS
                                1975 - 77  PORTLAND  FAIL
      S
      E  ----------D E Q   I D L E     T E S T-----------    --------------H T S   I D L E    T E S T----------------
EPANO Q  --------HC-------- ------CO-------- ---RPM---     -------HC-------- ------CO-------  -----NOX------  --RPM---
         1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND   1ST  2500 2ND   1ST  2ND
56036 0  0095 0065 0105 1 02.7 00.4 03.0 2 1050 1050 1   0090 0030 0090 01.4 00.1 01.6                  1020 1020
56036 M  0160 0300 0200 1 01.7 00.7 01.7 1 0900 0900 1   0230 0090 0520 00.9 00.1 00.9  0070 0190 0060  0890 0840
56036 1                                                  0090 0050 0080 00.8 00.2 00.9  0070 0180 0090  0900 0890
56036 2                                                  0100 0030 0100 00.7 00.1 00.7  0090 0140 0100  0930 0920

56037 0  0085 0235 0135 1 00.6 07.0 01.2 1 1150 1150 6   0060 0140 0060 00.1 03.8 00.1                  1080 1080
56037 M  0075 0030 0095 1 01.3 04.4 00.7 1 1030 1050 1   0160 0240 0060 02.1 07.2 00.1  0110 0140 0100  1050 1000
56037 1                                                  0050 0140 0040 00.0 03.7 00.0  0080 0180 0060  0850 0770
56037 2                                                  0040 0140 0050 00.0 03.0 00.0                  0850 0790

56038 0  0070 0050 0095 1 01.6 00.2 01.5 2 0600 0600 1   0090 0040 0080 01.6 00.1 01.3                  0650 0680
56038 M  0130 0065 0090 1 00.1 00.1 00.0 1 0800 0800 1   0090 0020 0040 00.1 00.1 00.1  0050 0090 0060  0620 0670
56038 1                                                  0100 0030 0080 00.2 00.0 00.2  0070 0220 0080  0610 0650
56038 2                                                  0080 0020 0070 00.0 00.1 00.0  0060 0120 0070  0560 0590
56038 3                                                  0440 0040 0090 00.2 00.1 00.1  0070 0150 0080  0580 0620
56038 4                                                  0100 0010 0080 00.1 00.2 00.2  0070 0140 0090  0620 0650

56039 0  0150 0105 0150 1 02.7 00.3 02.5 2 0750 0750 1   0110 0040 0090 01.2 00.0 01.1  0130 1000 0140  0870 0900
56039 M  0030 0025 0040 1 00.0 00.0 00.0 1 0875 0875 1   0030 0020 0030 00.0 00.0 00.0  0120 0460 0120  0770 0820
56039 1                                                  0040 0300 0030 00.2 00.0 00.0  0160 1000 0110  0820 0850
56039 2                                                  0100 0040 0080 00.7 00.0 00.3  0140 0800 0120  0790 0770
56039 3                                                  0040 0030 0020 00.3 00.0 00.0  0100 0860 0100  0770 0760
56039 4                                                  0030 0020 0020 00.0 00.0 00.0  0120 0840 0130  0810 0810

56040 0  0420 0160 0400 2 04.7 01.0 04.6 2 0800 0800 1   0570 0140 0580 03.6 02.9 05.5  0100 0240 0130  0640 0690
56040 M  0070 0060 0075 1 00.0 00.9 00.0 1 0700 0750 1   0130 0080 0080 00.0 02.2 00.0  0110 0180 0120  0820 0830
56040 1                                                  0190 0100 0150 00.0 02.7 00.0  0050 0180 0060  0710 0750

66001 0  0270 0060 0200 2 03.0 00.0 02.3 2 0800 0800 1   0250 0050 0160 01.9 00.0 01.1                  0750 0900
66001 M  0050 0095 0135 1 00.0 00.1 00.2 1 0750 0800 1   0170 0030 0100 00.8 00.0 00.7                  0760 0810
66001 1                                                  0080 0020 0120 00.2 00.0 00.8  0040 0140 0060  0750 0830
66001 2                                                  0050 0030 0080 00.0 00.0 00.1  0080 0160 0040  0760 0770
66001 3                                                  0270 0050 0100 01.6 00.0 00.4                  0690 0850
66001 4                                                  0080 0030 0120 00.0 00.0 00.5  0030 0140 0060  0700 0810

66002 0  0015 0025 0020 1 00.0 00.0 00.0 1 1250 1250 2   0100 0030 0020 00.0 00.0 00.0                  0830 1030
66002 M  0015 0015 0030 1 00.0 00.0 00.0 1 0900 0900 1   0030 0020 0020 00.1 00.0 00.0  0070 0220 0070  0830 0900
66002 1                                                  0010 0010 0010 00.0 00.0 00.0  0010 0240 0010  0910 0960
66002 2                                                  0030 0020 0040 00.0 00.0 00.0                  0910 1020
66002 3                                                  0030 0020 0030 00.0 00.0 00.0                  1000 1040
66002 4                                                  0030 0020 0030 00.0 00.0 00.0  0070 0145 0065  0910 0910

66003 0  0420 0125 0390 2 09.5 05.6 04.1 2 0800 0800 1   0310 0080 0360 07.6 00.0 08.2                  0820 0820
66003 M  0080 0060 0110 1 00.0 00.0 00.0 1 0800 0800 1   0210 0040 0120 00.0 00.0 00.1  0100 0180 0110  0740 0800
66003 1                                                  0230 0080 0200 04.1 00.0 04.2  0130 0160 0140  0850 1020
66003 2                                                  0190 0060 0170 02.0 00.0 02.4                  0840 0950
66003 3                                                  0170 0050 0170 01.2 00.0 02.9                  0780 0920
66003 4                                                  0150 0040 0150 02.3 00.0 02.7  0130 0190 0140  0940 1040

66004 0  0095 0020 0090 1 03.6 00.1 03.7 2 1000 1000 1   0050 0050 0040 01.0 00.0 00.2  0080 0360 0070  0920 0940

66005 0  0210 0060 0245 1 03.3 00.1 03.3 2 1000 1000 1   0250 0050 0240 02.8 00.0 03.4  0070 0180 0080  0890 0940
66005 M  0070 0020 0130 1 01.0 00.0 00.1 1 0900 0900 1   0130 0040 0100 00.0 00.0 00.0  0080 0150 0080  0800 0750
66005 1                                                  0540 0040 0670 06.7 00.0 07.1  0250 0300 0260  0720 0730
66005 2                                                  0520 0040 0540 07.0 00.0 07.6  0090 0150 0090  0840 0840
66005 3                                                  0490 0080 0520 05.8 00.0 06.6                  0760 0830
66005 4                                                  0310 0050 0360 05.1 00.0 05.5  0100 0300 0130  0820 0900

66006 0  0375 0140 0470 2 08.1 00.7 08.3 2 0950 0950 1   0370 0100 0420 06.7 00.2 07.6  0120 0210 0120  0850 0860
66006 M  0035 0040 0045 1 00.0 00.2 00.0 1 0900 0900 1   0090 0060 0080 00.0 00.0 00.0  0060 0130 0070  0850 0850
66006 1                                                  0050 0080 0060 00.0 00.6 00.0  0090 0210 0090  0600 0600
66006 2                                                  0130 0060 0140 01.1 00.0 02.1  0090 0170 0095  0750 0780
66006 3                                                  0140 0090 0170 01.2 00.2 01.8                  0720 0770
66006 4                                                  0260 0100 0260 02.5 00.0 03.3  0120 0220 0120  0660 0650

66007 0  0245 0110 0275 2 02.7 00.1 03.1 2 0800 0800 1   0190 0130 0210 01.2 00.3 01.9  0160 0250 0140  0810 0820

66008 0  0675 0240 0700 2 09.3 01.0 09.6 2 0800 0800 1   0810 0300 0800 09.2 02.1 08.7  0040 0060 0040  0660 0680
66008 M  0080 0100 0050 1 00.1 00.1 00.0 1 0700 0700 1   0230 0120 0080 00.2 00.4 00.0  0100 0260 0080  0670 0750
66008 1                                                  0130 0060 0040 00.1 00.0 00.0  0190 0340 0150  0750 0760
66008 2                                                  0110 0070 0050 00.2 00.2 00.0                  0720 0750
66008 3                                                  0060 0050 0060 00.0 00.0 00.0                  0750 0890
66008 4                                                  0120 0060 0080 00.3 00.0 00.0  0110 0140 0100  0810 0840

66009 0  0035 0250 0045 1 00.2 00.5 00.2 1 1900 1900 2   0190 0200 0190 00.2 00.4 00.2  0070 0110 0050  0880 0940
66009 M  0175 0140 0210 1 00.1 00.3 00.3 1 0800 0800 1   0150 0120 0180 00.2 00.3 00.2  0060 0100 0060  0800 0840
66009 1                                                  0190 0080 0190 00.2 00.3 00.2  0150 0180 0130  0790 0860
66009 2                                                  0260 0060 0300 00.1 00.2 00.2                  0740 0720
66009 3                                                  0070 0050 0060 00.3 00.3 00.3  0070 0120 0070  1180 1290
66009 4                                                  0130 0030 0130 00.1 00.2 00.1  0080 0140 0080  0910 0900

66010 0  0065 0030 0115 1 01.9 00.3 02.1 2 0750 0800 1   0120 0050 0120 02.5 00.3 02.0                  0660 0690
66010 M  0075 0075 0165 1 00.1 00.1 00.1 1 0700 0700 1   0100 0030 0050 00.1 00.3 00.3  0110 0330 0170  0600 0660
66010 1                                                  0080 0060 0080 00.3 00.8 00.5  0120 0540 0130  0630 0630
66010 2                                                  0110 0060 0050 00.2 00.7 00.3                  0580 0650
66010 3                                                  0080 0020 0060 00.2 00.3 00.3  0090 0420 0120  0600 0630
66010 4                                                  0080 0040 0100 00.9 00.8 01.7  0140 0290 0160  0740 0800

66011 0  0135 0060 0190 1 05.4 00.7 05.5 2 0750 0750 1   0230 0080 0220 06.4 00.5 06.9  0080 0380 0100  0730 0810
66011 M  0100 0045 0145 1 02.0 00.5 02.1 1 0800 0800 1   0140 0040 0100 01.9 00.3 02.2  0060 0280 0060  0760 0820
66011 1                                                  0310 0080 0250 03.0 00.5 03.2  0080 0560 0090  0720 0760
66011 2                                                  0500 0080 0560 06.1 00.7 06.9                  0630 0680
66011 3                                                  0510 0160 0530 07.4 02.0 08.4  0100 0450 0100  0650 0730
66011 4                                                  0170 0060 0170 01.0 00.7 01.1  0110 0420 0120  0890 0940

66012 0  0045 0030 0065 1 01.1 00.2 01.1 2 0950 0950 1   0090 0030 0060 01.7 00.4 01.5  0090 0100 0080  0890 0910

66013 0  2000 0395 0380 2 10.9 00.1 07.0 2 0500 0500 1   2420 0580 2630 09.9 00.1 09.9  0190 0230 0160  0470 0630
66013 M  0020 0035 0060 1 00.0 00.6 00.0 1 0900 0900 1   0030 0020 0020 00.0 00.0 00.0  0070 0600 0070  0850 0900
66013 1                                                  0060 0040 0030 00.0 00.0 00.0  0080 0500 0080  0690 0770
66013 2                                                  0050 0030 0030 00.0 00.0 00.0  0060 0350 0070  0790 0870
66013 3                                                  0030 0090 0030 00.0 00.0 00.0                  0770 0900
66013 4                                                  0020 0020 0020 00.0 00.0 00.0  0080 0580 0090  0780 0880
```

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
66014	0	0105	0065	0175	1	02.8	00.3	02.5	2	0650	0650	1	0170	0030	0160	03.0	00.1	02.7	0140	0410	0150	0600	0630
66014	M	0555	0070	0115	1	00.1	00.1	00.1	1	0600	0600	1	0190	0040	0090	00.1	00.0	00.0	0090	0500	0120	0560	0600
66014	1												0100	0030	0080	00.1	00.0	00.1	0040	0020	0030	0600	0600
66014	2												0130	0080	0160	02.2	00.2	02.2				0830	0840
66014	3												0120	0040	0120	03.5	00.1	04.5	0110	0440	0120	0810	0810
66014	4												0130	0030	0140	04.4	00.1	04.9	0140	0550	0150	0830	0810
66015	0	0110	0080	0145	1	04.9	02.0	04.5	2	1100	1100	1	0150	0080	0150	02.7	00.7	03.2	0140	0180	0140	1020	1050
66015	M	0065	0030	0160	1	00.9	00.1	00.8	1	0900	0900	1	0270	0090	0220	00.3	00.1	00.6	0140	0170	0130	0800	0810
66015	1												0080	0050	0140	00.6	00.2	00.7	0080	0220	0120	0860	0850
66015	2												0280	0210	0300	06.3	02.5	06.3				1020	1040
66015	3												0920	0720	0890	03.3	01.5	03.8	0080	0190	0090	1040	1000
66015	4												0310	0590	0750	04.8	01.6	04.9	0070	0200	0080	0950	0960
66016	0	0780	0265	0820	2	06.3	04.4	06.3	2	0800	0800	1	1050	0210	1070	07.4	02.5	07.6	0100	0640	0100	0720	0750
66016	M	0020	0025	0040	1	00.0	00.0	00.0	1	0800	0800	1	0360	0020	0030	00.0	00.0	00.0	0080	0200	0090	0700	0720
66016	1												0230	0080	0250	03.3	00.0	02.8	0100	0140	0110	0700	0740
66016	2												0250	0020	0200	05.6	00.0	04.4				0770	0790
66016	3												0160	0060	0130	03.2	00.0	02.6	0095	0170	0100	0770	0800
66016	4												0170	0030	0170	02.2	00.0	02.7	0110	0160	0120	0780	0830
66017	0	0100	0065	0120	1	04.6	01.6	04.5	2	1000	1000	1	0110	0050	0120	04.8	01.2	05.3	0100	0180	0100	0960	0990
66017	M	0115	0075	0105	1	02.4	00.3	02.3	1	0900	0900	1	0070	0030	0070	01.4	00.2	02.0	0110	0180	0120	0880	0910
66017	1												0500	0200	0770	03.0	02.1	03.2	0100	0120	0100	0750	0740
66017	2												0160	0080	0170	02.5	00.5	02.6				0860	0880
66018	0	0065	0020	0011	1	01.2	00.1	01.7	2	0800	0800	1	0110	0050	0090	00.5	00.0	00.9	0090	0450	0100	0750	0780
66019	0	0400	0100	0345	2	01.0	00.1	01.5	2	0900	0900	1	0540	0050	0030	00.4	00.0	00.0	0050	0180	0090	0750	0780
66020	0	0190	0090	0210	1	01.6	00.9	01.7	2	0800	0800	1	0230	0030	0160	00.7	00.0	01.5	0080	0220	0090	0750	0790
66020	M	0050	0030	0060	1	00.0	00.0	00.0	1	0800	0800	1	0130	0020	0060	00.0	00.0	00.0	0070	0200	0090	0720	0720
66020	1												0230	0030	0180	00.0	00.0	00.0	0080	0430	0090	0760	0780
66020	2												0170	0050	0130	01.7	00.7	01.2				0660	0690
66020	3												0250	0050	0120	00.6	00.0	01.3	0060	0120	0080	0610	0660
66020	4												0160	0030	0240	01.6	00.0	01.4	0100	0220	0100	0700	0690
66021	0	0205	0055	0250	1	05.2	00.0	05.1	2	0750	0800	1	0280	0040	0250	05.7	00.0	05.9	0130	0480	0140	0640	0720
66021	M	0105	003[illegible]	0170	1	00.0	00.1	00.0	1	0650	0550	1	0080	0170	0200	00.1	00.0	00.0	0050	0490	0080	0620	0670
66021	1												0250	0040	0210	00.0	00.0	00.0	0050	0140	0040	0550	0540
66021	2												0390	0240	0660	00.0	00.3	00.0				0550	0570
66021	3												0060	0210	0700	00.1	00.0	00.0	0040	0300	0040	0510	0530
66022	0	0100	0045	0125	1	01.3	00.1	01.1	2	1000	1000	1	0130	0050	0110	00.3	00.7	00.5	0120	0210	0100	0880	0960
66022	M	0015	0020	0020	1	00.0	[illegible].1	00.0	1	1000	1000	1	0030	0020	0020	00.0	00.0	00.0	0070	0120	0080	0860	0940
66022	1												0010	0010	0010	00.0	00.0	00.0	0120	0160	0120	0890	0940
66022	2												0020	0020	0020	00.0	00.0	00.0				0820	0840
66022	3												0030	0020	0020	00.0	00.0	00.0	0070	0120	0080	0720	0870
66022	4												0040	0010	0030	00.0	00.0	00.0	0100	0190	0130	0800	0870
66023	0	0250	0020	0250	2	00.0	00.0	00.0	1	0800	0800	1	0510	0030	0370	00.0	00.0	00.0	0080	0200	0070	0730	0800
66023	M	0060	0030	0065	1	00.0	00.0	00.0	1	1150	1150	1	0080	0030	0080	00.0	00.0	00.0	0080	0200	0110	0930	1090
66023	1												0120	0020	0090	00.0	00.0	00.0	0090	0530	0100	0700	0760
66023	2												0090	0040	0090	00.0	00.0	00.0				0820	0840
66023	3												0150	0030	0800	00.0	00.0	00.0	0085	0260	0080	0740	0800
66023	4												0150	0050	0100	00.0	00.0	00.0	0060	0270	0090	0780	0820
66024	0	0145	0100	0155	1	02.4	00.6	02.4	2	1050	1050	1	0090	0030	0100	00.4	00.1	01.7	0060	0580	0080	0880	1010
66024	M	0060	0050	0035	1	00.2	00.3	00.0	1	1000	1000	1	0050	0030	0020	00.0	00.4	00.0	0060	0430	0060	0840	0880
66024	1												0130	0060	0150	01.2	00.5	01.7				0780	0770
66024	2												0200	0080	0200	01.9	00.4	02.5				0720	0820
66025	0	0445	0140	0520	1	05.8	00.1	06.3	2	0900	0900	1	0660	0080	0390	06.8	00.3	05.9	0090	0180	0100	0730	0850
66025	M	0015	0020	0015	1	00.0	00.0	00.0	1	0500	0500	1	0030	0020	0040	00.0	00.0	00.0	0020	0080	0020	0490	0550
66025	1												0050	0020	0170	00.0	00.0	00.2	0070	0230	0030	0690	0730
66025	2												0050	0020	0030	00.0	00.0	00.0				0670	0760
66025	3												0300	0020	0010	00.0	00.0	00.0	0040	0040	0060	0690	0750
66025	4												0040	0030	0050	00.0	00.0	00.0	0060	0180	0080	0660	0750
66026	0	0125	0075	0175	1	03.6	00.5	03.4	2	1000	1000	1	0160	0090	0150	03.3	01.0	02.7	0140	0150	0140	0990	1000
66026	M	0080	0150	0210	1	00.4	00.7	01.1	1	0900	0900	1	0150	0140	0100	00.9	01.7	00.5	0160	0150	0170	0910	0930
66026	1												0090	0080	0090	00.2	00.4	00.2				0850	0870
66026	2												0120	0120	0110	00.2	00.5	00.2				0860	0840
66026	3												0120	0080	0110	00.2	00.3	00.2	0070	0160	0080	0760	0780
66026	4												0070	0050	0060	00.2	00.3	00.2	0130	0160	0130	0880	0870
66027	0	0285	0250	0310	2	05.3	01.5	04.6	2	1200	1200	2	0300	0080	0270	04.3	00.0	04.9	0090	0180	0100	1070	1100
66027	M	0070	0020	0055	1	00.0	00.0	00.0	1	0900	1000	1	0050	0010	0050	00.0	00.0	00.0	0020	0125	0020	0880	0890
66027	1												0240	0060	0190	00.0	00.0	00.0				0760	0810
66027	2												0130	0030	0080	00.0	00.0	00.0				0830	0860
66027	3												0050	0020	0030	00.0	00.0	00.0	0070	0200	0080	0870	0900
66027	4												0130	0040	0120	00.0	00.0	00.0	0080	0200	0080	0860	0860
66028	0	0085	0035	0060	1	04.0	01.0	03.6	2	1200	1200	1	0070	0040	0060	02.6	01.1	03.0	0100	0100	0100	1030	1070
66028	M	0090	0040	0095	1	02.5	00.6	02.2	1	1050	1050	1	0060	0020	0060	00.8	00.6	01.9	0120	0240	0130	0930	0990
66028	1												0080	0060	0070	02.8	01.3	02.9	0110	0200	0120	1040	1060
66028	2												2300	0740	2180	01.4	00.5	01.2				0910	1010
66028	3												0130	0070	0140	05.5	01.7	05.9	0120	0220	0220	0920	0940
66028	4												0150	0060	0120	04.5	01.1	05.2	0110	0210	0120	0830	0900
66029	0	0100	0075	0110	1	01.1	00.1	01.2	2	0900	0900	1	0060	0030	0030	00.0	00.0	00.0	0080	0120	0060	0770	0820
66029	M	0025	0085	0090	1	00.0	00.9	01.0	1	0950	0950	1	0080	0090	0060	00.0	00.8	00.0	0120	0160	0120	0900	0930
66029	1												0070	[illegible]	0030	00.0	00.0	00.0	0100	0140	0080	0800	0900
66029	2												0090	0030	0090	00.9	00.3	00.9				0930	0970
66029	3												0130	0030	0050	00.0	00.0	00.0	0100	0140	0100	0830	0920
66029	4												0030	0070	0030	00.0	01.0	00.0	0130	0170	0140	0870	0980
66030	0	0220	0060	0135	1	00.1	00.1	00.1	1	1200	1250	2	0140	0030	0120	00.1	00.2	00.1	0070	0160	0060	1070	1150
66030	M	0100	0065	0205	1	00.1	00.1	00.1	1	0900	0900	1	0130	0050	0120	00.1	00.2	00.1	0060	0180	0060	0770	0850
66030	1												0460	0170	0440	00.2	01.6	00.2				0820	0820
66030	2												0340	0140	0260	00.2	00.3	00.2				0760	0820
66030	3												1490	0270	1500	00.2	00.3	00.2	0020	0090	0020	0680	0750
66030	4												0130	0050	0160	00.1	00.2	00.1	0080	0280	0070	0960	1080

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

EPANO	SEQ	D E Q I D L E T E S T											H T S I D L E T E S T										
		HC				CO				RPM			HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
66031	0	0075	0055	0060	1	01.6	00.1	00.4	1	1200	1600	2	0360	0050	0050	01.1	00.2	00.7	0110	0260	0110	1170	1350
66031	M	0080	0045	0110	1	01.1	00.1	00.9	1	0900	0900	1	0390	0360	0110	00.8	00.2	00.8	0080	0220	0060	0990	0810
66031	1												0170	0080	0160	02.3	00.1	02.0	0060	0180	0060	0640	0680
66031	2												0180	0070	0160	00.2	00.1	00.2				0650	0680
66031	3												0170	0060	0170	00.1	00.2	00.1	0060	0200	0070	0620	0630
66031	4												0230	0090	0240	00.3	00.1	00.2	0060	0200	0070	0620	0640
66032	0	0245	0310	0240	2	00.0	00.0	00.0	1	1000	1050	1	0280	0100	0230	00.0	00.0	00.0	0070	0180	0130	0880	0930
66032	M	0030	0085	0045	1	00.0	00.0	00.0	1	0900	0900	1	0050	0030	0040	00.0	00.0	00.0	0110	0120	0100	0800	0820
66032	1												0020	0050	0020	00.0	00.0	00.0	0060	0110	0080	0790	0850
66032	2												0080	0050	0050	00.0	00.0	00.0				0770	0840
66032	3												0090	0030	0060	00.0	00.0	00.0	0080	0140	0110	0810	0900
66032	4												0030	0020	0030	00.0	00.0	00.0	0080	0160	0090	0850	0880
66033	0	0565	0920	0375	2	10.8	11.2	07.9	2	1600	1600	2	0800	1700	0760	09.9	09.9	09.9	0180	0190	0170	1220	1400
66033	M	0125	0070	0185	1	00.5	01.3	00.3	1	0900	0900	1	0130	0050	0100	00.3	01.5	00.1	0060	0240	0110	0730	0760
66034	0	0320	0385	0350	2	04.1	00.1	03.5	2	1000	1000	1	0290	0460	0360	03.0	00.2	04.0	0140	0200	0140	0850	0850
66034	M	0400	0300	0310	1	00.1	00.2	00.1	1	0800	0800	1	0490	0200	0200	00.6	01.5	00.2	0100	0190	0110	0710	0750
66034	1												0250	0150	0110	00.2	00.9	00.0	0080	0150	0100	0690	0760
66034	2												0230	0160	0370	02.1	01.4	02.4				0770	0850
66034	3												0310	0130	0310	02.5	01.2	02.6	0130	0170	0130	0780	0770
66034	4												0330	0160	0370	02.2	01.2	04.0	0740	0950	0720	1030	0820
66035	0	0030	0040	0040	1	00.0	00.0	00.0	1	1300	1300	2	0080	0060	0090	00.0	00.0	00.0	0070	0310	0080	1180	1150
66035	M	0143	0100	0125	1	00.0	00.0	00.0	1	1000	1000	1	0140	0050	0100	00.0	00.0	00.0	0110	0200	0120	0870	0940
66035	1												0400	0100	0240	00.2	00.6	00.2	0060	0210	0080	0900	0960
66035	2												0150	0100	0140	00.0	00.0	00.0	0080	0200	0100	1020	1050
66035	3												0160	0050	0180	00.1	00.3	00.1	0120	0250	0140	1000	1020
66035	4												0300	0090	0190	00.1	00.2	00.1	0100	0250	0090	0870	0980
66036	0	0045	0025	0045	1	02.6	01.5	02.6	2	1100	1100	1	0060	0040	0060	03.0	01.6	02.8	0110	0220	0110	1070	1070
66036	M	0035	0050	0040	1	00.5	01.8	00.7	1	1150	1150	1	0060	0050	0050	00.4	00.4	00.3	0110	0320	0120	1030	1050
66036	1												0050	0050	0060	00.5	00.3	00.5	0070	0210	0080	0990	1020
66036	2												0170	1020	0220	00.3	00.5	00.3				1120	1090
66036	3												0080	0700	0080	00.2	00.3	00.3	0080	0340	0080	1190	1200
66036	4												0050	0400	0090	00.2	00.3	00.2	0110	0410	0100	1020	1170
66037	0	0075	0035	0030	1	00.2	00.4	00.6	1	2500	2500	2	0030	0020	0020	00.2	00.3	00.2	0120	0140	0120	2050	2160
66037	M	0055	0035	0065	1	00.1	00.4	00.2	1	1100	1600	1	0070	0040	0050	00.2	00.3	00.2	0080	0140	0110	1230	1610
66037	1												0110	0030	0090	00.5	00.5	00.3	0060	0080	0060	0900	0940
66037	2												0090	0030	0100	00.3	00.3	00.3				0930	0940
66037	3												0150	0050	0100	00.4	00.4	00.5	0040	0100	0050	0960	1040
66037	4												0090	0040	0090	00.3	00.4	00.3	0060	0090	0060	1020	1020
66038	0	0275	0195	0425	2	02.0	01.0	02.8	2	0600	0600	1	0360	0220	0310	02.2	01.8	00.5				0710	0720
66038	M	0125	0100	0175	1	00.3	00.4	00.2	1	0700	0700	1	0170	0110	0210	00.2	00.3	00.2				0710	0700
66038	1												0090	0060	0060	00.2	00.0	00.0	0090	0220	0100	0750	0760
66038	2												0160	0080	0120	00.0	00.0	00.0	0120	0230	0100	0730	0770
66038	3												0310	0110	0320	01.9	00.1	02.5	0130	0250	0120	0770	0790
66038	4												0210	0050	0240	01.1	00.0	01.8	0120	0200	0130	0760	0780
66039	0	0140	0085	0205	1	02.7	02.7	02.8	2	1000	1050	1	0160	0090	0170	00.5	00.9	00.7				0920	0980
66040	0	0435	0230	0475	2	06.2	01.9	06.4	2	0800	0800	1	0620	0210	0570	07.4	03.8	06.5				0800	0830
66040	M	0015	0025	0025	1	00.0	00.0	00.0	1	0650	0650	1	0090	0040	0050	00.0	00.0	00.0				0700	0750
66040	1												0040	0020	0030	00.0	00.1	00.0	0040	0260	0040	0640	0710
66040	2												0050	0030	0060	00.0	00.1	00.0	0060	0120	0050	0660	0670
66040	3												0070	0050	0060	00.0	01.0	00.0	0060	0160	0060	0680	0670
66040	4												0230	0050	0110	02.8	00.4	00.0	0080	0200	0060	0700	0700
66041	0	0310	0060	0170	1	09.2	02.8	07.7	2	0700	0700	1	0170	0070	0070	05.8	00.5	03.3				1120	1140
66041	M	0025	0030	0040	1	00.6	00.1	00.5	1	1000	1000	1	0060	0050	0060	00.7	00.1	00.4				0970	0960
66041	1												0110	0060	0050	00.6	00.2	00.4	0060	0200	0070	1390	1420
66041	2												0050	0050	0040	00.5	00.2	00.3	0060	0220	0080	1130	1150
66041	3												0070	0030	0070	02.8	00.4	02.5	0080	0140	0080	1030	1060
66041	4												0050	0040	0080	02.6	00.4	02.8	0080	0170	0090	1030	1030
66042	0	0180	0070	0240	1	01.9	00.3	02.5	2	1050	1050	1	0200	0080	0270	01.7	01.5	00.9				0930	0950
66042	M	0040	0020	0400	1	00.0	00.1	00.0	1	1000	1000	1	0230	0030	0040	00.0	00.0	00.0	0070	0270	0070	0810	0660
66042	1												0170	0020	0120	00.0	00.1	00.2	0090	0370	0120	0950	1040
66042	2												0170	0020	0170	00.4	00.0	00.3	0090	0290	0080	0990	1050
66042	3												0400	0050	0370	01.2	00.4	00.7	0110	0270	0110	1020	1060
66042	4												0210	0040	0170	01.3	00.0	00.2	0100	0280	0080	0960	1020
66043	0	0410	0310	0925	2	05.6	03.5	04.8	2	0900	0900	5	0410	0190	0400	05.3	02.9	06.1	0080	0190	0090	0900	0900
66044	0	0500	0107	0230	1	02.3	00.8	02.0	2	0950	0950	1	0170	0030	0080	01.3	00.2	00.1	0090	0150	0100	0840	0920
66044	M	0070	0095	0065	1	00.7	01.1	00.8	1	0900	0900	1	0380	0050	0060	00.0	00.2	00.0	0060	0140	0080	0790	0850
66044	1												0070	0040	0080	00.0	00.0	00.0	0090	0180	0100	0850	0850
66045	0	0390	0180	0310	2	04.2	00.7	04.5	2	0950	0950	1	0300	0090	0330	03.3	00.4	04.4	0120	0220	0140	0750	0830
66046	0	0480	0115	0530	2	05.5	00.7	05.6	2	0800	0800	1	0500	0090	0470	06.7	00.0	06.9	0120	0200	0120	0640	0640
66047	0	2000	0405	2000	2	03.0	00.2	03.9	2	0700	0700	1	2480	0350	2060	04.2	00.0	03.4	0140	0830	0130	0720	0700
66047	M	0140	0155	0220	1	00.0	00.0	00.0	1	0500	0520	1	0390	0140	0530	00.0	00.0	00.0	0080	0580	0200	0560	0620
66047	1												0500	0070	0450	00.0	00.0	00.0	0140	0470	0130	0750	0730
66047	2												0310	0050	0330	00.0	00.0	00.0	0120	0430	0120	0790	0830
66047	3												0330	0030	0340	00.0	00.0	00.0	0080	0480	0080	0760	0800
66047	4												0400	0040	0280	00.0	00.0	00.0	0070	0560	0070	0760	0770
76001	0	0290	0180	0335	2	00.1	00.0	00.2	1	0800	0850	1	0250	0070	0270	01.0	00.0	01.0				0810	0830
76001	M	0020	0130	0320	1	00.0	00.0	00.0	1	0800	0800	1	0090	0020	0060	00.0	00.0	00.0	0050	0080	0070	0750	0780
76001	1												0020	0010	0020	00.0	00.0	00.0	0070	0210	0090	0680	0740
76002	0	0515	0070	0380	2	01.8	00.0	01.8	2	0800	0800	1	0270	0050	0120	00.0	00.0	00.0	0070	0160	0040	0710	0730
76002	M	0090	0090	0095	1	00.0	00.0	00.0	1	0700	0600	1	0130	0030	0090	00.0	00.0	00.0	0050	0150	0060	0710	0790
76002	1												0200	0040	0120	00.0	00.0	00.0	0090	0200	0100	0660	0730
76002	2												0210	0040	0130	00.0	00.0	00.0	0060	0130	0070	0700	0750
76002	3												0260	0100	0390	00.1	00.1	00.1				1260	0860
76002	4												0290	0120	0220	00.0	00.0	00.0	0070	0200	0080	0620	0620

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

```
      S  ----------U E D     I D L E    T E S T----------   ------------ --H T S      I D L E      T E S T-----------------
      E  --------HC-------   ---------CO------  ----RPM---   ------HC------  ------CO------  ------NOX-----  ---RPM---
EPANO Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S       1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND
76003 0  0175 0160 0215 1 02.8 00.3 02.5 2 1100 1100 1  0260 0080 0260 02.3 00.2 02.3 0080 0200 0080 1010 1020
76003 M  0020 0025 0065 1 00.0 00.0 00.1 1 1000 1100 1  0200 0060 0100 00.2 00.0 00.0 0090 0150 0060 0860 0920
76003 1                                                 0070 0030 0130 00.0 00.0 00.1 0060 0180 0060 0900 0930

76004 0  0265 0345 0260 2 01.4 00.2 01.2 2 0850 0850 1  0310 0230 0360 01.8 00.1 02.7 0110 0110 0110 0910 0900
76004 M  0020 0105 0040 1 00.0 00.0 00.0 1 0950 0950 1  0030 0050 0020 00.0 00.0 00.0                0880 0930
76004 1                                                 0050 0030 0010 00.0 00.0 00.0 0100 0140 0100 0820 0950
76004 2                                                 0090 0180 0050 00.0 00.0 00.0                0840 0920
76004 3                                                 0050 0100 0030 00.0 00.0 00.0 0130 0100 0140 0920 0960
76004 4                                                 0040 0020 0020 00.0 00.0 00.0 0120 0240 0120 0890 0930

76005 0  0190 0095 0225 2 02.3 00.1 02.4 2 0900 0900 1  0280 0060 0290 04.2 00.0 04.1 0090 0120 0090 0680 0680
76005 M  0025 0020 0025 1 00.0 00.1 00.0 1 0700 0700 1  0210 0050 0070 00.1 00.0 00.0 0040 0100 0080 0680 0690
76005 1                                                 0100 0020 0200 00.5 00.0 01.5 0090 0160 0090 0960 0780
76005 2                                                 0280 0030 0030 00.6 00.0 00.0                0710 0720
76005 3                                                 0250 0060 0200 02.0 00.0 01.6 0070 0140 0090 0680 0740
76005 4                                                 0350 0020 0030 00.0 00.0 00.0 0060 0130 0070 0720 0740

76006 0  0080 0065 0115 1 03.9 02.1 02.4 2 1000 2000 1  0150 0060 0130 04.8 01.4 02.1 0140 0200 0110 0910 1000
76006 M  0085 0070 0105 1 01.3 00.1 01.2 1 0950 0950 1  0040 0020 0030 00.5 00.2 00.5 0120 0170 0110 0910 0920
76006 1                                                 0060 0020 0060 00.3 00.1 00.7                1030 0900
76006 2                                                 0060 0030 0050 00.4 00.3 00.5                0850 0890
76006 3                                                 0060 0030 0080 00.6 00.2 00.8 0040 0200 0040 0810 0880
76006 4                                                 0090 0040 0070 01.0 00.2 01.0 0100 0140 0090 0960 1000

76007 0  0100 0080 0095 1 03.7 01.9 03.5 2 1100 1200 1  0120 0050 0090 02.0 00.5 02.5 0150 0220 0160 0960 0940

76008 0  0360 0195 0420 2 03.5 00.6 04.5 2 0900 0900 1  0450 0180 0410 03.0 00.5 03.6 0130 0200 0140 0830 0920
76008 M  0075 0080 0115 1 00.0 08.0 00.0 1 0950 0950 1  0160 0060 0060 00.0 00.3 00.0 0080 0120 0080 0940 0940
76008 1                                                 0520 0130 0480 07.6 02.0 08.0 0100 0120 0100 0710 0710
76008 2                                                 0400 0130 0380 05.2 00.7 06.0                0750 0800
76008 3                                                 0530 0120 0490 07.2 00.8 06.7 0110 0110 0110 0770 0770
76008 4                                                 0240 0030 0100 00.0 00.6 00.0 0120 0140 0120 0750 0830

76009 0  0360 0430 0560 2 00.1 00.4 00.3 1 0700 0700 1  0200 0100 0200 00.0 00.0 00.2 0080 0170 0060 0630 0710
76009 M  0025 0040 0040 1 00.0 00.0 00.0 1 0900 0900 1  0080 0050 0020 00.0 00.0 00.0 0090 0590 0060 0770 0840
76009 1                                                 0070 0050 0090 00.3 00.0 01.0 0060 0440 0120 0840 0910
76009 2                                                 0160 0150 0160 02.3 01.1 01.7                0920 0860
76009 3                                                 0190 0120 0140 00.8 00.6 00.9 0090 0260 0080 0890 0870
76009 4                                                 0200 0130 0150 00.9 00.3 01.2 0100 0420 0110 0840 0890

76010 0  1765 0465 1675 2 10.5 02.5 10.5 2 0600 0600 1  1580 0310 1300 09.9 03.2 09.5 0150 0200 0140 0700 0730
76010 M  0020 0035 0030 1 00.0 00.1 00.0 1 0650 0650 1  0090 0030 0020 00.0 00.0 00.0 0250 0170 0300 0660 0700
76010 1                                                 1140 0210 1080 08.2 00.5 09.1 0130 0250 0150 0730 0730
76010 2                                                 0350 0280 0880 07.0 00.1 07.9                0760 0780
76010 3                                                 0530 0230 0690 01.7 00.5 02.9 0110 0260 0170 0710 0740

76011 0  0200 0070 0195 1 04.8 00.5 04.2 2 0800 0800 1  0160 0060 0140 03.5 00.7 04.2 0140 0200 0140 0960 0940

76012 0  0610 0125 0700 2 05.5 00.1 05.2 2 0600 0600 1  0830 0040 0650 05.5 00.0 05.9 0110 0180 0120 0630 0660
76012 M  0020 0020 0025 1 00.0 00.0 00.0 1 0800 0850 1  0050           00.3           0090           0680
76012 1                                                 0100 0030 0070 00.0 00.0 00.0 0060 0160 0100 0650 0710
76012 2                                                 0040 0030 0050 00.0 00.0 00.0                0810 0860
76012 3                                                 0080 0030 0060 00.0 00.0 00.0 0090 0150 0090 0770 0820
76012 4                                                 0050 0020 0030 00.0 00.0 00.0 0080 0150 0100 0630 0650

76013 0  0575 0430 0390 2 06.3 10.4 03.6 2 0900 0900 1  0450 0210 0480 03.0 02.8 03.3 0200 0140 0140 0890 0900
76013 M  0075 0040 0095 1 00.4 00.1 00.8 1 0800 0800 1  0040 0130 0050 00.0 01.6 00.0 0070 0340 0080 0800 0880
76013 1                                                 0030 0160 0040 00.0 02.5 00.0 0100 0430 0110 0770 0870
76013 2                                                 0050 0090 0050 00.0 01.8 00.0                0660 0740
76013 3                                                 0030 0100 0030 00.0 01.1 00.0 0060 0360 0080 0700 0760
76013 4                                                 0060 0130 0050 00.0 01.2 00.0 0050 0600 0070 0560 0650

76014 0  0295 0065 0310 2 02.2 00.0 02.4 2 0850 0850 1  0270 0030 0210 01.2 00.0 01.6 0100 0420 0100 0770 0850
76014 M  0040 0030 0055 1 00.0 00.0 00.0 1 0700 0700 1  0050 0020 0020 00.0 00.0 00.0 0070 0300 0090 0620 0670
76014 1                                                 0050 0020 0030 00.0 00.0 00.0 0060 0360 0080 0650 0700
76014 2                                                 0040 0020 0040 00.0 00.0 00.0                0650 0730
76014 3                                                 0040 0010 0020 00.0 00.0 00.0 0050 0210 0060 0670 0710
76014 4                                                 0120 0050 0080 00.0 00.0 00.0 0090 0360 0110 0710 0700

76015 0  0330 0150 0500 2 02.6 00.0 02.8 2 0850 0850 1  0520 0060 0230 02.0 00.0 02.4 0120 0190 0130 0770 0800

76016 0  0220 0095 0250 1 06.3 03.0 05.5 2 0800 0800 1  0150 0040 0150 01.8 00.4 02.3 0100 0180 0100 0750 0770
76016 M  0020 0025 0020 1 00.0 00.8 00.0 1 0850 0850 1  0070 0050 0050 00.1 00.8 00.0 0080 0180 0090 0750 0810
76016 1                                                 0030 0020 0020 00.0 00.8 00.0                0720 0770
76016 2                                                 0020 0020 0020 00.0 00.2 00.0                1030 1030
76016 3                                                 0050 0020 0030 00.0 00.0 00.0 0080 0150 0100 0800 0820
76016 4                                                 0030 0020 0030 00.0 00.0 00.0 0070 0190 0110 0830 0830

76017 0  0635 0120 0573 2 07.0 00.0 06.9 2 0750 0750 1  0560 0110 0640 06.3 00.2 06.7 0090 0150 0070 0630 0670
76017 M  0015 0015 0025 1 00.0 00.1 00.0 1 0800 0800 1  0030 0020 0010 00.0 00.5 00.0 0060 0140 0050 0800 0780
76017 1                                                 0050 0020 0060 00.0 00.0 00.0 0060 0120 0060 0630 0670
76017 2                                                 0020 0020 0030 00.0 00.0 00.0                0610 0640
76017 3                                                 0020 0010 0020 00.0 00.0 00.0 0080 0120 0060 0610 0640
76017 4                                                 0020 0010 0020 00.0 00.0 00.0 0080 0120 0090 0630 0640

76018 0  0720 0235 1200 2 03.4 00.7 04.5 2 0800 0800 1  0400 0300 0450 06.0 00.0 06.9 0090 0110 0090 0850 0870
76018 M  0030 0080 0115 1 00.0 01.4 00.0 1 0800 0800 1  0030 0050 0020 00.0 00.0 00.0 0060 0120 0080 0700 0500
76018 1                                                 0050 0040 0030 00.0 00.0 00.0 0070 0140 0080 0690 0760
76018 2                                                 0160 0110 0090 00.4 00.7 00.4                0680 0700
76018 3                                                 0090 0170 0060 00.0 00.0 00.0 0080 0130 0100 0650 0740
76018 4                                                 0190 0170 0120 00.1 00.2 00.0 0060 0180 0100 0580 0660

76019 0  2000 0400 2000 2 10.7 02.7 10.3 2 0750 0750 1  1800 0170 2470 09.9 01.0 09.9 0120 0610 0140 0760 0750
76019 M  0075 0105 0160 1 00.0 00.0 00.0 1 0900 0950 1  0110 0050 0030 00.0 00.0 00.0 0130 0150 0100 0760 0860
76019 1                                                 0280 0250 0250 00.3 00.2 00.1                0800 0880
76019 2                                                 0170 0150 0130 00.0 00.0 00.0                0820 0920
76019 3                                                 0180 0020 0110 00.0 00.0 00.0 0110 0410 0120 0780 0850
76019 4                                                 0130 0030 0120 00.0 00.0 00.0 0100 0900 0110 0790 0860

76020 0  0580 0030 0635 2 01.3 00.1 01.3 2 0800 0850 1  0360 0050 0510 00.2 00.0 00.4 0060 0180 0070 0700 0760
76020 M  0080 0045 0075 1 00.0 00.0 00.0 1 0500 0500 1  0150 0020 0080 00.0 00.0 00.0 0030 0130 0020 0450 0490
76020 1                                                 0100 0010 0070 00.0 00.0 00.0 0050 0200 0070 0540 0550
76020 2                                                 0060 0020 0040 00.0 00.0 00.0                0710 0760
76020 3                                                 0140 0040 0070 00.0 00.0 00.0 0060 0080 0080 0710 0760
76020 4                                                 0100 0030 0220 00.1 00.0 00.2 0070 0540 0070 0680 0720
```

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

```
       S   --------D E W    I D L E    T E S T----------    ------------H T S    I D L E    T E S T--------------
       E   --------HC------  --------CO------  ----RPM---    -----HC------  -----CO------  -----NOX-----  --RPM---
EPANO  Q   1ST 2500  2ND S  1ST 2500  2ND S  1ST  2ND S    1ST 2500  2ND  1ST 2500  2ND  1ST 2500  2ND  1ST  2ND

76021 0    0275 0065 0265 2 07.7 00.1 07.3 2 0900 0900 1   0280 0600 0240 06.8 04.5 06.4 0100 0160 0120 0870 0920
76021 M    0340 0030 0040 1 00.2 00.1 00.1 1 0900 0900 1   0080 0020 0030 00.0 00.0 00.0 0080 0150 0090 0780 0840
76021 1                                                    0140 0020 0050 00.0 00.2 00.1                0810 0810
76021 2                                                    0160 0050 0160 02.1 00.5 02.9                0840 0870

76022 0    0545 0125 0650 2 05.7 00.1 05.7 2 0650 0650 1   0560 0100 0580 04.4 00.0 05.3 0080 0130 0080 0640 0630

76023 0    0400 0125 0480 2 05.2 00.1 05.3 2 1000 1000 1   0430 0050 0440 03.5 00.1 04.5 0100 0140 0100 0890 0950
76023 M    0130 0075 0185 1 00.0 00.0 00.1 1 0700 0700 1   0080 0000 0250 00.0 00.0 00.3                0610 0670
76023 1                                                    0500 0100 0500 00.9 00.4 01.8                0680 0750
76023 2                                                    0250 0120 0200 00.0 00.1 00.0                0610 0680
76023 3                                                    0230 0080 0180 00.0 00.1 00.2 0060 0160 0070 0620 0690
76023 4                                                    0780 0050 0680 03.0 00.0 03.1 0090 0160 0100 0750 0750

76024 0    0600 0150 05[illegible] 2 08.5 02.1 07.8 2 0900 0900 1   0500 0110 0490 06.0 00.1 06.4 0020 0130 0080 0900 0930
76024 M    0020 0030 0070 1 00.0 00.2 01.7 1 0600 0800 1   0030 0010 0030 00.0 00.0 00.0 0080 0120 0080 0700 0760
76024 1                                                    0160 0030 0080 00.0 00.0 00.0                0870 0880
76024 2                                                    0090 0030 0050 00.0 00.0 00.0                0650 0660
76024 3                                                    0050 0030 0050 00.0 00.0 00.0 0100 0160 0100 1030 1120
76024 4                                                    0400 0050 0420 02.1 00.0 01.5 0100 0160 0100 0610 0620

76025 0    0570 0160 05[illegible] 2 04.8 00.1 04.4 2 0550 0550 1   0690 0050 0510 03.3 00.0 03.8 0100 0140 0090 0490 0540
76025 M    0035 0035 0040 1 00.0 00.0 00.0 1 1150 1150 1   0080 0030 0030 00.0 00.0 00.0 0050 0180 0080 0590 0650
76025 1                                                    0030 0020 0020 00.0 00.0 00.0                0640 0690
76025 2                                                    0060 0080 0050 00.0 00.0 00.0                1010 1070
76025 3                                                    0200 0050 0180 02.3 00.0 02.1 0110 0150 0110 1020 1050
76025 4                                                    0070 0060 0140 00.0 00.0 00.3 0080 0130 0070 0820 0840

76026 0    0300 0195 0355 2 01.1 00.0 01.1 2 0950 0950 1   0520 0210 0350 00.4 00.0 00.1 0060 0180 0080 0830 0830
76026 M    0060 0030 0330 1 00.0 00.0 00.9 1 0850 0850 1   0150 0040 0130 00.0 00.0 00.0 0090 0150 0080 0780 0840
76026 1                                                    0140 0130 0060 00.0 00.0 00.0                0830 0830
76026 2                                                    0150 0140 0120 00.0 00.0 00.0                0800 0870
76026 3                                                    0130 0160 0090 00.0 00.0 00.0 0090 0150 0070 0820 0800
76026 4                                                    0290 0150 0260 00.5 00.0 01.4 0110 0160 0100 0800 0880

76027 0    0350 0105 0380 2 03.6 00.1 03.5 2 0750 0750 1   0720 0090 0460 01.1 00.1 01.6 0090 0150 0080 0730 0770
76027 M    0030 0025 0035 1 00.0 00.0 00.0 1 0800 0800 1   0030 0030 0050 00.0 00.0 00.0 0140 0240 0140 0700 0700
76027 1                                                    0100 0060 0100 00.0 00.2 00.0 0080 0160 0070 0680 0690
76027 2                                                    0090 0030 0070 00.0 00.0 00.0                0660 0660
76027 3                                                    0170 0050 0200 00.0 00.1 00.0 0100 0160 0100 0720 0720
76027 4                                                    0330 0130 0240 00.3 00.6 00.1 0120 0240 0130 0690 0690

76028 0    0340 0175 0470 2 04.7 00.4 05.7 2 0650 0650 1   0310 0190 0320 02.2 00.2 02.8 0080 0170 0090 0580 0610
76028 M    0030 0075 0070 1 00.0 00.1 00.0 1 0500 0500 1   0230 0300 0070 00.4 00.0 00.0                0530 0530
76028 1                                                    0030 0180 0030 00.0 00.0 00.0                0550 0580
76028 2                                                    0150 0110 0130 00.0 00.0 00.0                0510 0550
76028 3                                                    0120 0160 0140 00.0 00.0 00.0 0060 0200 0080 0540 0550
76028 4                                                    0030 0080 0070 00.0 00.0 00.0 0100 0500 0110 0650 0700

76029 0    0765 0185 0560 2 07.6 01.8 04.9 2 1000 1000 2   0820 0140 0790 06.8 01.4 07.1 0070 0410 0065 0850 0900

76030 0    0355 0090 0415 2 04.5 00.1 05.0 2 0800 0800 1   0450 0030 0430 04.6 00.0 05.6 0065 0120 0080 0720 0760
76030 M    0025 0040 0035 1 00.0 00.0 00.0 1 0800 0800 1   0090 0050 0060 00.0 00.0 00.0 0050 0140 0080 0600 0670
76030 1                                                    0030 0020 0020 00.0 00.0 00.0 0070 0130 0090 0600 0670
76030 2                                                    0070 0040 0040 00.0 00.0 00.0                0630 0690
76030 3                                                    0050 0020 0040 00.0 00.0 00.0 0060 0140 0080 0670 0700
76030 4                                                    0050 0020 0030 00.0 00.0 00.0 0100 0160 0100 0540 0700

76031 0    0240 0080 0220 2 03.4 00.5 03.3 2 1000 1000 1   0190 0090 0270 03.5 00.9 03.9 0080 0220 0090 1010 0780
76031 M    0150 0045 0125 1 01.3 00.2 01.2 1 1100 1100 1   0190 0070 0180 00.1 00.3 00.1 0120 0280 0130 0980 1010
76031 1                                                    0130 0050 0120 01.9 00.4 01.9 0090 0200 0100 1050 0990
76031 2                                                    0090 0040 0070 01.2 00.3 01.1                1010 1000
76031 3                                                    0090 0040 0100 01.4 00.3 01.4 0090 0200 0090 1090 1110
76031 4                                                    0190 0060 0160 02.8 00.5 02.7 0110 0240 0090 0940 0950

76032 0    0205 0060 0220 1 02.8 00.2 02.6 2 0850 0850 1   0240 0060 0200 02.9 00.2 02.5 0060 0120 0060 0710 0760
76032 M    0080 0050 0115 1 01.4 00.2 01.2 1 1000 1000 1   0140 0050 0110 00.9 00.3 01.1 0080 0110 0070 0890 0900
76032 1                                                    0130 0070 0120 01.1 00.3 01.0 0060 0140 0060 0810 0820
76032 2                                                    0130 0040 0100 01.1 00.3 01.1                0740 0790
76032 3                                                    0130 0050 0100 01.6 00.3 01.3 0070 0160 0070 0800 0840
76032 4                                                    0140 0030 0110 01.7 00.4 01.5 0070 0160 0070 0720 0810

76033 0    0355 0060 0410 2 05.0 00.1 05.4 2 0880 0880 1   0420 0030 0350 04.4 00.0 05.0 0080 0260 0085 0730 0780
76033 M    0045 0070 0085 1 00.0 00.0 00.0 1 0800 0800 1   0040 0020 0030 00.0 00.0 00.0 0080 0160 0080 0630 0670
76033 1                                                    0120 0030 0080 00.0 00.0 00.0                0630 0700
76033 2                                                    0060 0040 0050 00.0 00.0 00.0                0660 0710
76033 3                                                    0030 0020 0100 00.0 00.0 00.1 0080 0140 0080 0660 0660
76033 4                                                    0090 0030 0050 00.0 00.0 00.0 0070 0160 0090 0570 0620

76034 0    0445 0060 0440 2 05.0 00.0 05.0 2 0700 0700 1   0730 0060 0520 05.5 00.0 05.0 0090 0190 0100 0640 0690
76034 M    0215 0075 0035 1 04.2 01.4 00.0 1 1150 1150 1   0040 0020 0030 00.0 00.0 00.0 0110 0190 0120 0840 0850
76034 1                                                    0090 0030 0070 00.0 00.0 00.0                0680 0740
76034 2                                                    0050 0020 0040 00.0 00.0 00.0                0660 0710
76034 3                                                    0120 0050 0130 00.0 00.0 00.0 0080 0200 0060 0610 0650
76034 4                                                    0440 0120 0310 00.0 00.0 00.0 0080 0180 0060 0580 0560

76035 0    0315 0055 0300 2 04.6 00.0 04.3 2 0700 0700 1   0430 0060 0320 05.6 00.0 04.6 0120 0270 0130 0680 0740
76035 M    0010 0010 0010 1 00.0 00.0 00.0 1 0700 0700 1   0030 0010 0020 00.0 00.0 00.0 0080 0250 0130 0610 0610
76035 1                                                    0060 0010 0040 00.0 00.0 00.0 0050 0140 0040 0640 0630
76035 2                                                    0150 0070 0170 00.1 00.2 00.3                0600 0650
76035 3                                                    0030 0020 0040 00.0 00.0 00.0 0060 0200 0070 0660 0660
76035 4                                                    0070 0020 0030 00.0 00.0 00.0 0070 0220 0090 0640 0690

76036 0    0370 0140 0440 2 00.1 00.1 00.1 1 0750 0750 1   0190 0090 0170 00.0 00.0 00.0 0110 0180 0110 0700 0710
76036 M    0050 0040 0085 1 00.1 00.0 00.1 1 1000 1000 1   0090 0040 0060 00.0 00.0 00.0 0070 0130 0080 0970 0980
76036 1                                                    0260 0090 0110 00.0 00.0 00.0 0080 0130 0090 0950 0970
76036 2                                                    0100 0060 0110 00.0 00.0 00.0                0920 0990
76036 3                                                    0560 0100 0410 00.1 00.0 02.6 0090 0140 0100 0770 0810
76036 4                                                    0590 0090 0490 00.5 00.0 00.8 0110 0180 0120 0720 0780

76037 0    0920 0105 0670 1 07.3 00.0 06.5 2 0600 0600 1   0320 0080 0890 06.4 00.0 06.7 0140 0180 0120 0590 0600
76037 M    0020 0015 0025 1 00.0 00.0 00.0 1 0900 0900 1   0050 0020 0060 00.0 00.0 00.1 0140 0190 0120 0910 0960
76037 1                                                    0250 0030 0180 00.0 00.0 00.0                0700 0750
76037 2                                                    0080 0010 0050 00.0 00.0 00.0                0540 0600
76037 3                                                    0170 0030 0150 00.5 00.0 00.9 0110 0160 0100 0880 0930
76037 4                                                    0210 0050 0200 02.4 00.0 02.5 0110 0200 0120 0980 0990
```

APPENDIX B - IDLE TEST RESULTS

1975 - 77 PORTLAND FAIL

	S E Q	D E J I D L E T E S T											H T S I D L E T E S T										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
76038	0	0495	0065	0395	2	02.1	00.0	02.0	2	0800	0800	1	0460	0080	0380	01.3	00.2	01.9	0060	0450	0070	0730	0750
76038	M	0110	0035	0125	1	01.1	00.0	01.0	1	0800	0800	1	0100	0020	0120	00.7	00.0	00.6	0060	0180	0040	0770	0770
76038	1												0060	0000	0030	00.0	00.0	00.0	0040	0130	0040	0660	0670
76038	2												0250	0090	0120	00.0	00.1	00.0				0590	0660
76038	3												0000	0000	0030	00.0	00.0	00.0	0060	0200	0080	0660	0660
76038	4												0170	0130	0230	00.3	00.3	00.2	0080	0360	0090	0860	0630
76039	0	0550	0110	0535	2	00.5	00.0	00.9	1	0850	0850	1	0130	0060	0060	00.0	00.0	00.0	0090	0180	0080	0680	0700
76039	M	0045	0050	0045	1	00.0	00.0	00.0	1	0800	0800	1	0100	0040	0070	00.0	00.0	00.0	0100	0180	0120	0700	0680
76039	1												0120	0020	0080	00.0	00.0	00.0				0680	0680
76039	2												0110	0060	0050	00.0	00.0	00.0				0460	0500
76039	3												0000	0000	0030	00.0	00.0	00.0	0050	0150	0060	0580	0650
76039	4												0150	0000	0110	00.0	00.0	00.0	0050	0160	0080	0630	0640
76040	0	0410	0040	0370	2	00.8	00.0	01.0	1	0700	0700	1	0130	0060	0420	00.0	00.0	00.4				0720	0780
76040	M	0075	0100	0080	1	00.4	00.1	00.2	1	0700	0700	1	0060	0000	0040	00.0	00.0	00.0				0670	0650
76040	1												0050	0000	0030	00.0	00.0	00.0	0070	0100	0090	0670	0700
76040	2												0000	0020	0020	00.0	00.0	00.0	0070	0120	0080	0600	0650
76041	0	0110	0085	0100	1	04.9	01.9	03.5	2	1050	1700	2	0100	0050	0080	02.6	00.9	03.8				1050	1020
76042	0	0440	0164	0484	2	05.1	00.4	04.4	2	0700	0700	1	0540	0120	0520	04.7	00.1	04.5				0700	0730
76042	M	0060	0035	0030	1	01.2	00.0	00.4	1	0850	0850	1	0170	0020	0050	01.0	00.8	00.5	0080	0120	0090	0620	0670
76042	1												0030	0020	0030	00.0	00.0	00.0	0070	0140	0100	0740	0800
76042	2												0020	0020	0020	00.0	00.0	00.0	0090	0160	0110	0750	0760
76042	3												0030	0020	0030	00.0	00.0	00.0	0070	0160	0090	0640	0680
76042	4												0000	0010	0020	00.0	00.0	00.0	0070	0160	0060	0640	0680
76043	0	0200	0065	0175	1	02.7	00.1	02.9	2	0900	0900	1	0610	0130	0340	03.5	00.0	03.5				0780	0850
76043	M	0005	0000	0005	1	00.0	00.0	00.4	1	0700	0700	1	0000	0000	0190	00.6	00.0	00.9	0040	0130	0070	0790	0850
76043	1												0070	0020	0040	00.0	00.0	00.0	0080	0120	0080	0800	0830
76043	2												0050	0010	0020	00.0	00.0	00.0				0760	0820
76043	3												0120	0020	0060	00.0	00.0	00.0	0090	0160	0100	0810	0840
76044	0	0170	0200	0905	1	05.3	02.5	02.2	2	0700	0700	1	0260	0110	0200	04.4	00.2	04.3				0700	0710
76044	M	0020	0020	0025	1	00.0	00.0	00.0	1	0600	0600	1	0030	0050	0070	00.0	00.0	00.0	0110	0510	0100	0860	0520
76044	1												0020	0020	0060	00.0	00.0	00.0	0110	0640	0100	0500	0610
76044	2												0130	0120	0220	02.6	01.5	02.1	0140	0180	0110	1150	0780
76045	0	0135	0140	0195	2	03.6	01.9	04.3	2	0900	0900	1	0220	0090	0190	02.6	00.6	04.7				0740	0800
76045	M	0015	0045	0030	1	00.0	00.0	00.0	1	0700	0700	1	0150	0100	0100	00.0	00.0	00.0	0040	0110	0060	0590	0630
76046	0	0200	0085	0160	1	06.1	01.9	05.4	2	1200	0800	1	0190	0080	0170	04.5	01.9	04.2	0085	0160	0080	0710	0700
76046	M	0075	0045	0100	1	00.6	00.1	00.6	1	0700	0700	1	0090	0050	0070	00.4	00.1	00.5	0080	0140	0090	0780	0780
76046	1												0100	0080	0100	01.4	01.1	01.7	0060	0170	0160	1820	1810
76047	0	0500	0000	0500	2	01.4	00.2	00.9	1	0800	0850	1	0460	0050	0380	01.9	00.0	01.8	0090	0420	0100	0800	0780
76047	M	0030	0055	0030	1	00.0	00.4	00.0	1	0700	0700	1	0130	0020	0060	00.0	00.0	00.0	0080	0580	0090	0610	0600
76047	1												0050	0020	0030	00.0	00.0	00.0	0250	0600	0260	0940	0990
76048	0	0165	0075	0150	2	01.5	00.2	02.1	2	1050	1050	1	0380	0070	0080	03.6	00.1	00.9	0090	0130	0100	0850	0890
76048	M	0015	0000	0075	1	00.0	00.0	01.0	1	0900	0900	1	0020	0050	0020	00.0	00.0	00.0	0100	0120	0100	0600	0900
76048	1												0090	0080	0060	00.0	00.2	00.0	0060	0120	0090	0780	0800

APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
27001	0	0535	0130	0575	1	06.5	01.0	05.4	2	0750	0750	1	0390	0080	0420	05.5	00.4	06.4	0120	0640	0130	0710	0720
27001	1												0520	0100	0520	05.2	00.4	05.8				0650	0710
27001	2												0540	0080	0320	03.1	00.2	04.3	0090	0460	0110	0760	0790
27001	3												0450	0100	0460	05.6	00.5	06.0	0120	0530	0140	0750	0790
27002	0	0630	0250	0525	2	09.4	03.8	08.0	2	0700	0700	1	0400	0110	0380	05.8	00.5	05.6				0740	0760
27002	1												0510	0130	0430	06.2	00.8	06.3	0160	0910	0170	0710	0730
27002	2												0530	0150	0620	06.8	01.1	06.4	0100	0400	0110	0690	0720
27002	3												0420	0140	0450	05.5	00.6	06.1				0710	0720
27002	4												0320	0060	0310	04.1	00.2	04.5	0150	0500	0160	0730	0740
27003	0	0260	0125	0290	1	08.9	00.8	08.9	2	0700	0750	1	0220	0090	0250	08.0	00.7	08.3	0140	0600	0140	0700	0710
27003	1												0320	0120	0260	09.2	01.1	09.7	0140	0780	0140	0780	0760
27003	2												0240	0070	0290	06.0	00.6	07.1				0760	0770
27003	3												0280	0090	0280	07.5	00.5	07.5	0140	0320	0140	0740	0750
27003	4												0300	0080	0310	08.9	00.6	09.5	0140	0410	0140	0670	0680
27004	0	0170	0160	0200	1	04.4	00.5	04.2	2	0750	0800	1	0160	0190	0200	03.6	00.6	04.3	0120	0250	0130	0760	0780
27004	1												0170	0050	0170	02.8	00.2	03.9	0150	0480	0160	0740	0770
27004	2												0250	0110	0220	05.3	01.4	04.5				0730	0760
27004	3												0130	0030	0120	02.8	00.1	03.2	0120	0360	0120	0750	0770
27004	4												0120	0250	0120	02.6	00.2	02.4	0120	0380	0130	0850	0860
27005	0	0140	0095	0210	1	03.9	00.2	04.1	2	0750	0800	1	0230	0080	0210	05.2	00.2	05.1	0220	0550	0240	0690	0770
27005	1												1310	1130	1140	00.3	00.4	00.2	0100	0490	0090	0700	0710
27005	2												1050	1100	0940	00.5	00.4	00.4				0800	0800
27005	3												0770	1000	0850	00.1	00.3	00.2	0080	0480	0080	0800	0800
27005	4												0590	0700	0730	00.1	00.2	00.1	0080	0500	0080	0710	0720
27006	0	0095	0080	0125	1	03.6	01.9	02.8	2	0800	0800	1	0170	0060	0130	04.6	00.4	03.4	0100	0490	0120	0650	0700
27006	1												0310	0360	0170	00.8	01.0	00.1	0150	0440	0170	0690	0700
27006	2												0290	0080	0210	00.6	01.7	00.5				0720	0730
27006	3												0390	0100	0320	01.1	02.2	00.5	0090	0200	0090	0770	0720
27006	4												0400	0060	0360	00.5	00.5	00.2	0120	0240	0110	0680	0700
27007	0	0570	0075	0630	1	05.9	00.5	06.1	2	0900	0900	1	0680	0110	0420	05.4	00.4	05.9	0110	0380	0120	0810	0850
27008	0	0190	0165	0160	1	04.8	03.5	04.3	2	1200	1200	1	0270	0150	0200	05.2	02.4	05.8	0130	0260	0140	1040	1210
27008	1												0250	0130	0190	05.6	02.7	04.9	0150	0240	0160	1100	1190
27008	2												0340	0150	0270	06.8	02.5	05.9				1100	1160
27009	0	0190	0075	0225	1	03.4	00.2	03.6	2	0850	0850	1	0220	0060	0220	02.2	00.3	02.9	0120	0320	0140	0830	0890
27009	1												2930	0500	2460	00.4	00.4	00.4	0060	0180	0080	1000	1080
27010	0	0095	0030	0100	1	03.0	00.5	03.1	1	0900	0900	1	0190	0030	0110	02.2	00.1	01.5	0140	0250	0150	0810	0820
27010	1												0350	0050	0200	00.3	00.1	00.2	0050	0160	0060	0690	0700
27010	2												0200	0120	0190	05.3	02.2	06.5				0730	0680
27010	3												0250	0120	0240	05.0	01.9	04.5	0095	0170	0100	0780	0800
27010	4												0380	0200	0330	05.2	01.9	05.6	0120	0260	0130	0850	0850
27011	0	0120	0145	0125	1	02.6	00.6	01.8	1	0650	0650	1	0120	0070	0090	00.6	00.4	01.3	0080	0360	0110	0520	0650
27012	0	0280	0095	0285	1	03.7	01.0	03.7	2	0800	0800	1	0150	0080	0090	00.3	00.3	00.2	0080	0130	0080	0700	0770
27013	0	0145	0085	0210	1	02.6	00.6	02.2	1	0500	0500	1	0300	0160	0250	01.0	00.5	01.9	0080	0300	0090	0590	0660
27013	1												0240	0100	0260	01.8	00.5	02.5				0630	0660
27013	2												0300	0070	0180	00.2	00.4	01.9	0110	0380	0020	1100	0670
27013	3												0250	0210	0230	02.4	00.7	01.0	0100	0640	0080	0700	0600
27014	0	0155	0090	0230	1	04.9	00.6	05.3	2	0850	0850	1	0250	0100	0240	04.8	00.4	05.2	0120	0300	0110	0720	0760
27014	1												0200	0060	0200	04.9	00.4	05.2	0120	0320	0120	0810	0830
27014	2												0250	0090	0260	04.6	00.4	05.0				0770	0820
27014	3												0280	0080	0250	04.6	00.3	05.4	0140	0440	0140	0740	0780
27014	4												0720	0160	0580	08.8	00.4	08.4	0160	0720	0180	0540	0580
27015	0	0365	0275	0270	1	05.2	07.6	05.6	2	1050	1050	1	0310	0220	0240	04.2	06.2	04.3	0110	0160	0110	0950	1070
27016	0	0065	0030	0055	1	02.6	00.1	02.7	1	0800	0800	1	0390	0050	0080	02.9	00.2	02.8	0110	0420	0100	0600	0610
27017	0	0125	0130	0250	1	03.5	01.5	02.8	2	0900	0900	1	0170	0080	0130	02.3	00.3	02.2	0090	0250	0090	0660	0690
27017	1												0230	0050	0240	04.4	00.6	03.1	0080	0260	0070	0640	0650
27017	2												0160	0150	0150	03.1	00.4	04.8				0870	0880
27017	3												0130	0110	0190	03.3	00.2	03.6	0140	0350	0150	0950	0950
27017	4												0130	0050	0130	03.1	00.4	02.3	0120	0360	0110	0900	0900
27018	0	0135	0020	0125	1	01.6	00.1	01.4	1	0750	0750	1	0390	0020	0090	00.6	00.1	01.0	0100	0310	0100	0650	0690
27018	1												0240	0080	0200	04.6	00.5	04.7	0120	0580	0120	0760	0800
27018	2												0340	0190	0240	04.5	00.8	03.6				0730	0780
27018	3												0260	0100	0260	04.7	00.4	04.4	0130	0620	0130	0630	0660
27018	4												0210	0380	0210	03.9	00.4	03.9	0140	0550	0140	0680	0690
27019	0	0095	0095	0120	1	02.8	00.8	02.5	1	0900	0900	1	0150	0060	0110	01.5	00.2	01.8	0110	0400	0120	0810	0820
27019	1												0110	0340	0110	02.6	00.2	02.4	0090	0370	0090	0800	0830
27019	2												0240	0080	0200	05.3	00.2	04.1				0760	0860
27019	3												0160	0050	0120	01.0	00.1	01.1	0110	0400	0120	0750	0780
27019	4												0200	0080	0150	02.0	00.2	01.5	0140	0480	0130	0800	0800
27020	0	0085	0085	0135	1	02.4	01.2	01.2	1	0750	0750	1	0100	0050	0110	00.9	00.3	01.1	0090	0330	0105	0650	0690
27020	1												0110	0050	0080	00.5	00.3	00.7				0630	0660
27020	2												0090	0060	0220	02.0	00.6	01.2				0580	0540
27020	3												0100	0050	0090	01.1	00.4	00.9	0100	0400	0100	0800	0780
27020	4												0180	0080	0160	05.2	00.3	06.4	0120	0200	0130	0620	0630
27021	0	0140	0145	0260	1	03.7	02.6	03.3	1	1000	1000	1	0250	0100	0230	04.3	00.7	03.6	0100	0480	0100	0830	0890
27021	1												0170	0100	0170	05.6	02.0	04.7				1040	1050
27021	2												0160	0130	0170	04.7	02.8	05.1				1020	0990
27021	3												0190	0110	0200	05.4	00.9	04.5	0140	0460	0160	0940	0990
27021	4												0220	0080	0230	05.7	00.8	06.5	0120	0400	0120	0830	0860
27022	0	0095	0095	0205	1	01.6	00.4	02.1	1	0850	0850	1	0120	0050	0140	01.7	00.5	02.0	0110	0380	0120	0680	0710
27022	1												0210	0100	0180	01.6	00.7	02.1	0070	0100	0080	0660	0700
27022	2												0140	0030	0130	01.8	00.2	02.4				0660	0710
27022	3												0170	0100	0160	02.3	01.4	02.7	0120	0370	0130	0670	0700
27022	4												0170	0060	0190	03.0	00.2	03.0	0100	0260	0110	0670	0680

APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

EPANO	SEQ	DEQ IDLE TEST HC 1ST	HC 2500	HC 2ND	S	CO 1ST	CO 2500	CO 2ND	S	RPM 1ST	RPM 2ND	S	HTS IDLE TEST HC 1ST	HC 2500	HC 2ND	CO 1ST	CO 2500	CO 2ND	NOX 1ST	NOX 2500	NOX 2ND	RPM 1ST	RPM 2ND
27023	0	0140	0045	0165	1	03.2	00.9	03.3	2	0750	0750	1	0160	0050	0190	02.1	01.1	03.4	0100	0320	0110	0780	0730
27023	1												0260	0060	0250	02.2	00.7	02.6				0680	0710
27023	2												0200	0090	0170	03.1	01.1	03.2				0670	0730
27023	3												0190	0060	0180	01.5	00.9	01.9	0120	0380	0160	0670	0760
27023	4												0140	0060	0120	01.9	01.0	01.8	0120	0280	0130	0810	0850
27024	0	0140	0090	0215	1	01.9	00.4	02.4	1	1050	1050	1	0210	0100	0220	02.0	01.3	02.6	0090	0220	0100	0930	1000
27024	1												0220	0350	0200	01.2	00.6	01.3	0080	0230	0100	0880	0900
27024	2												0330	0080	0310	01.7	00.4	01.6				0900	0950
27024	3												0240	0090	0240	00.4	00.6	01.4	0040	0280	0060	0860	0920
27024	4												0230	0080	0310	01.3	00.7	01.4	0060	0120	0070	0840	0930
27025	0	0485	0585	0590	1	00.2	00.1	00.2	1	0880	0800	1	0710	0800	0740	00.4	00.2	00.3				0800	0830
27025	1												0320	0160	0730	00.3	00.2	00.3	0020	0110	0020	0740	0760
27025	2												0370	0160	0270	00.9	00.2	00.8				0900	0960
27025	3												0580	0160	0410	00.6	00.5	00.5	0040	0180	0040	0930	0940
27025	4												0320	0250	0440	00.7	00.2	00.7	0050	0230	0050	0840	0880
27026	0	0070	0030	0115	1	00.1	00.3	00.1	1	0950	0950	1	0310	0100	0310	05.8	01.4	05.8	0100	0180	0100	0810	0800
27026	1												0240	0090	0260	03.5	01.5	03.9				0800	0800
27026	2												0240	0100	0230	03.0	01.2	03.3				0740	0790
27026	3												0200	0100	0170	03.2	00.8	03.3	0120	0260	0090	0860	0860
27026	4												0290	0100	0230	03.9	00.9	03.1	0120	0220	0140	0670	0720
27027	0	0125	1235	0175	1	01.8	00.1	01.1	1	0880	0800	1	0120	1290	0170	00.9	00.3	00.9	0080	0600	0090	0770	0790
27027	1												0120	1230	0170	00.2	00.3	00.5				0630	0680
27028	0	0840	0350	0550	2	08.2	06.5	05.1	2	0500	0500	1	0780	0360	0530	09.9	07.6	09.9	0090	0150	0090	0480	0680
27028	1												0280	0120	0290	03.4	02.7	03.3				0750	0770
27028	2												0250	0140	0230	04.7	03.0	03.8				0740	0820
27028	3												0260	0120	0210	05.2	02.2	03.7	0120	0150	0120	0750	0860
27028	4												0390	0070	0090	02.0	[illegible]	02.0	0110	0360	0120	0830	0810
27029	0	0270	0060	0400	1	07.8	01.9	07.5	2	0530	0550	1	0410	0060	0440	08.5	01.1	08.8	0080	0170	0080	0510	0500
27029	1												0310	0080	0280	06.3	00.6	06.9	0100	0200	0110	0530	0570
27029	2												0240	0050	0280	06.2	00.4	07.3				0600	0580
27029	3												0310	0040	0200	07.0	00.2	05.4	0120	0230	0120	0540	0600
27029	4												0190	0040	0190	04.3	00.5	04.3	0130	0260	0140	0670	0670
27030	0	0290	0160	0315	1	04.4	01.2	03.8	2	1050	1050	1	0430	0120	0340	06.2	00.4	05.4	0070	0410	0080	0830	0900
27030	1												0310	0100	0320	03.8	00.3	04.1				0920	0950
27030	2												0400	0130	0350	04.7	00.3	04.9				0890	0960
27030	3												0380	0160	0090	00.1	01.9	00.2	0070	0340	0080	1120	1230
27030	4												0390	0140	0240	00.5	00.4	00.7	0100	0390	0090	0680	0760
27031	0	0060	0060	0125	1	01.3	00.1	01.1	1	0750	0750	1	0090	0030	0060	00.9	00.1	00.8	0070	0160	0090	0680	0710
27031	1												0080	0020	0060	00.9	00.1	00.9	0080	0150	0080	0680	0730
27031	2												0090	0030	0090	01.2	00.1	01.5				0690	0710
27031	3												0130	0080	0090	01.6	02.3	01.0	0100	0140	0100	0930	0910
27031	4												0080	0020	0050	01.0	00.0	00.8	0080	0150	0080	0670	0680
27032	0	0190	0075	0195	1	04.7	00.3	05.0	2	0850	0850	1	0190	0030	0200	05.3	00.2	06.5	0095	0260	0100	0810	0850
27032	1												0180	0020	0160	04.5	00.4	04.7	0080	0180	0090	0750	0790
27032	2												0150	0050	0160	03.5	00.3	02.6				0770	0800
27032	3												0180	0050	0160	04.7	00.2	05.5	0130	0300	0130	0820	0850
27032	4												0120	0020	0110	01.9	00.1	02.3	0140	0260	0150	0810	0850
27033	0	0335	0040	0195	1	06.6	01.2	05.1	2	0550	0550	1	0230	0020	0240	06.0	00.3	06.0	0060	0160	0070	0560	0530
27033	1												0250	0050	0190	04.6	00.3	04.3				0580	0590
27033	2												0210	0040	0230	05.3	00.6	05.5				0570	0550
27033	3												0250	0030	0250	05.5	00.3	05.7	0090	0240	0090	0530	0520
27033	4												0220	0060	0220	05.3	00.5	05.5	0070	0140	0080	0600	0560
27034	0	0625	0380	0690	1	05.2	02.3	05.6	2	0400	0400	1	0820	0200	0850	06.6	00.6	06.9	0100	0400	0100	0930	0960
27034	1												0730	0250	0680	05.3	00.4	05.3				0870	0910
27034	2												0970	0320	0890	06.1	00.4	06.5				0900	0900
27034	3												1010	0340	0960	05.7	00.4	06.2	0120	0380	0140	0860	0870
27034	4												1070	0530	1090	05.5	00.4	05.7	0100	0440	0120	0930	1040
27035	0	0065	0035	0105	1	00.2	00.3	00.1	1	0850	0850	1	0100	0030	0090	00.2	00.1	00.2	0080	0190	0070	0840	0840
27035	1												0230	0020	0120	00.2	00.1	00.1				0790	0860
27035	2												0250	0070	0120	00.2	00.1	00.2				0780	0820
27035	3												0230	0030	0100	00.2	00.1	00.1	0080	0160	0080	0670	0710
27035	4												0140	0030	0080	00.1	00.1	00.1	0080	0180	0100	0710	0760
27036	0	0645	0345	0935	2	01.6	00.1	02.0	1	0900	1000	1	0780	0500	0770	03.5	00.3	03.6	0100	0310	0120	0750	0800
27036	1												0440	0300	0490	02.3	00.5	02.9				0860	0850
27036	2												0210	0050	0250	02.0	00.2	03.8				0800	0810
27036	3												0300	0250	0250	03.4	00.2	02.4	0090	0250	0100	0760	0820
27036	4												0300	0100	0340	03.7	00.5	03.5	0110	0380	0120	0780	0860
27037	0	0105	0070	0160	1	00.4	00.1	00.7	1	0850	0850	1	0190	0070	0130	00.5	00.2	00.5	0110	0250	0120	0740	0780
27037	1												0130	0050	0120	00.4	00.1	00.6				0790	0810
27038	0	0495	0300	0580	2	06.5	01.5	06.5	2	0800	0800	1	0460	0160	0480	04.4	00.5	04.1	0120	0570	0120	0790	0810
27038	1												0490	0150	0510	03.4	02.1	03.9	0080	0320	0080	0750	0790
27038	2												0790	0160	0670	06.7	00.6	05.7				0680	0730
27038	3												0290	0120	0300	01.2	00.3	01.1	0110	0380	0120	0820	0830
27038	4												0370	0200	0310	03.2	00.9	01.4	0120	0420	0110	0730	0840
27039	0	0040	0025	0050	1	01.7	00.2	01.6	1	0900	0900	1	0160	0040	0070	02.2	00.2	01.8	0060	0150	0070	0770	0820
27039	1												0150	0040	0060	02.8	00.2	02.1	0040	0090	0040	0710	0780
27039	2												0120	0050	0080	01.8	00.2	01.7				0800	0790
27039	3												0050	0020	0040	01.2	00.1	01.1	0070	0150	0070	0840	0830
27039	4												0060	0020	0060	01.6	00.1	00.9	0070	0140	0080	0760	0820
27040	0	0210	0280	0250	1	02.3	01.9	02.8	1	1000	1000	1	0350	0100	0240	03.6	00.5	02.1	0140	0260	0140	0890	0960
27040	1												0210	0100	0210	00.9	00.4	00.9	0080	0200	0080	0940	0930
27040	2												0210	0100	0200	01.7	00.4	01.8				0910	0970
27040	3												0280	0070	0230	01.5	00.2	01.1	0090	0280	0080	0860	0970
27040	4												0500	0170	0310	02.5	00.4	01.5	0100	0230	0100	0920	1030
27041	0	0055	0180	0175	1	00.1	00.1	00.1	1	0800	0800	1	0060	0120	0050	00.7	00.2	00.6	0040	0250	0050	0770	0830

APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

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         S  ---------O E Q    I D L E     T E S T-----------   ---------------M T S     I D L E     T E S T-----------------
         E  ---------HC------  ---------CO-------  ----RPM---   ------HC-------   ------CO-------   ------NOX-------   --RPM---
EPANO    W  1ST 2500 2ND S  1ST  2500 2ND  S  1ST  2ND S     1ST  2500 2ND   1ST  2500 2ND    1ST  2500 2ND     1ST  2ND
37001 0  0115 0050 0115 1 02.8 00.2 02.8 1 0800 0850 1     0380 0030 0140 01.8 00.1 02.2                      0820 0830
37001 1                                                    0380 0050 0130 01.3 00.3 02.9  0140 0780 0120    1010 0780
37001 2                                                    0120 0050 0100 03.2 00.3 02.6  0090 0310 0090    0780 0790
37001 3                                                    0160 0050 0090 00.5 00.2 00.9                    0710 0750
37001 4                                                    0100 0030 0100 01.9 00.2 02.2  0020 0120 0030    0750 0780
37002 0  0075 0070 0120 1 01.4 00.6 01.0 1 0700 0700 1     0130 0060 0180 00.3 00.2 00.5  0150 2200 0160    0600 0640
37003 0  0265 0135 0290 1 06.7 01.3 05.4 2 0700 0750 1     0270 0090 0250 05.9 01.2 05.2  0110 0220 0120    0600 0630
37004 0  0130 0080 0165 1 04.0 00.2 02.3 1 0800 0800 1     0230 0060 0140 04.1 00.2 02.3  0160 0900 0140    0680 0730
37004 1                                                    0350 0060 0050 00.1 00.5 00.1  0120 0990 0110    0730 0700
37004 2                                                    0090 0070 0070 00.1 00.4 00.8                    0640 0580
37004 3                                                    0100 0100 0070 00.2 01.6 00.1  0120 0460 0080    0720 0710
37004 4                                                    0080 0060 0070 00.1 00.3 00.1  0140 0700 0110    0660 0660
37005 0  0195 0215 0275 1 01.7 01.0 01.0 1 0900 0900 1     0190 0080 0160 00.9 00.5 00.9  0000 0000 0000    0970 0800
37006 0  0105 0570 0780 1 00.1 00.1 00.1 1 0700 0700 1     0530 0100 0260 00.2 00.2 00.2  0060 0140 0080    0690 0750
37006 1                                                    0380 0050 0090 00.2 00.1 00.1  0110 0180 0110    0720 0720
37006 2                                                    0350 0050 0320 00.1 00.2 00.1                    0630 0690
37006 3                                                    0090 0050 0120 00.3 00.2 00.2  0050 0090 0060    0710 0720
37006 4                                                    0190 0070 0130 00.3 00.2 00.1  0080 0160 0080    0720 0730
37007 0  0180 0275 0125 1 03.8 05.7 03.4 2 1700 1700 2     0190 0070 0130 03.1 00.5 02.1  0170 0690 0180    1360 1380
37007 1                                                    0100 0040 0090 02.5 00.4 01.8  0130 0600 0130    0970 1000
37007 2                                                    0130 0070 0130 01.6 01.7 02.1                    1140 1190
37007 3                                                    0190 0060 0140 04.2 00.6 02.9  0100 0250 0120    0810 0940
37007 4                                                    0310 0320 0260 06.7 06.3 05.0  0140 0260 0140    0840 0870
37008 0  0310 0270 0395 2 06.0 01.5 05.9 2 0800 0800 1     0340 0380 0340 05.7 00.3 06.2  0120 0440 0120    0780 0820
37008 1                                                    0340 0380 0310 05.7 00.4 06.0  0120 0460 0130    0860 0900
37008 2                                                    0370 0950 0360 07.0 00.8 06.9                    0850 0870
37008 3                                                    0290 1700 0460 05.9 00.7 06.2  0090 0440 0080    0850 0880
37008 4                                                    0380 0130 0310 05.7 00.4 05.9  0100 0360 0120    0710 0760
37009 0  0625 0230 0695 1 05.5 01.5 05.2 2 1150 1150 2     0710 0200 0740 05.6 00.5 05.9  0100 0250 0100    1070 1180
37010 0  0125 0080 0150 1 05.4 02.0 04.3 2 0600 0500 1     0120 0090 0140 03.9 01.9 04.5  0120 0510 0130    0580 0600
37010 1                                                    0130 0060 0120 02.2 00.3 02.0  0120 0640 0140    0680 0720
37010 2                                                    0160 0060 0120 02.8 00.6 02.4                    0660 0690
37010 3                                                    0150 0080 0120 06.2 01.0 03.5  0100 0280 0110    0750 0760
37011 0  0090 0050 0090 1 00.7 00.2 00.1 1 0850 0850 1     0120 0040 0090 00.5 00.2 00.5  0120 0260 0120    0770 0820
37011 1                                                    0340 0100 0240 04.4 01.1 04.9  0060 0160 0090    0750 0850
37011 2                                                    0780 0160 0550 05.3 01.0 05.2                    0750 0830
37011 3                                                    0550 0140 0430 05.8 01.1 05.6  0090 0220 0100    0780 0870
37011 4                                                    0210 0170 0460 05.5 02.0 05.2                    0780 0880
37012 0  0238 0294 0310 1 08.4 05.6 08.4 2 1000 1000 1     0280 0330 0310 06.8 07.0 07.2  0160 0180 0180    1030 1010
37012 1                                                    0140 0130 0110 01.3 05.5 01.3                    0920 0920
37012 2                                                    0380 0110 0070 01.8 03.8 02.2  0080 0190 0080    0910 0950
37012 3                                                    0260 0170 0110 03.0 05.3 01.6  0100 0220 0090    0920 0890
37013 0  0050 0080 0075 1 01.0 02.3 01.3 1 0750 0750 1     0130 0050 0080 00.9 00.7 01.1  0140 0270 0120    0680 0720
37014 0  0215 0275 0350 1 04.7 02.6 05.3 2 0900 0900 1     0300 0180 0350 03.9 02.0 05.2  0090 0560 0100    0900 0940
37014 1                                                    0370 0160 0400 04.6 03.0 05.9  0080 0310 0090    0830 0870
37014 2                                                    0350 0190 0340 05.4 02.1 05.5                    0870 0880
37014 3                                                    0130 0130 0790 04.8 02.4 04.7  0100 0350 0100    0870 0870
37014 4                                                    0290 0160 0230 02.5 02.0 03.6  0100 0320 0120    0820 0860
37015 0  0135 0160 0110 1 05.8 02.1 05.6 2 0950 0950 1     0140 0370 0130 04.6 00.9 05.1  0080 0340 0080    0810 0860
37015 1                                                    0190 0390 0140 06.8 02.5 06.2  0060 0140 0080    0840 0850
37015 2                                                    0140 0080 0130 04.5 01.6 05.0                    0760 0770
37015 3                                                    0200 0380 0170 05.4 01.4 06.2  0110 0300 0120    0750 0790
37016 0  0410 0395 0525 2 03.9 00.8 03.8 2 0950 0950 1     0750 0530 0740 01.9 00.5 01.9  0090 0360 0100    0780 0820
37016 1                                                    0750 1680 0910 01.6 00.5 03.7  0100 0520 0100    0880 0700
37016 2                                                    1290 2100 1180 03.2 00.9 03.3                    0800 0800
37017 0  0075 0035 0115 1 00.9 00.2 01.2 1 0800 0800 1     0150 0040 0140 00.9 00.3 01.2  0090 0220 0100    0800 0850
37017 1                                                    0180 0040 0130 01.1 00.4 00.9                    0740 0800
37017 2                                                    0150 0050 0130 01.6 00.3 01.6                    0850 0850
37017 3                                                    0130 0030 0070 00.3 00.2 00.3  0080 0230 0100    0720 0770
37017 4                                                    0110 0040 0140 00.9 00.3 01.2  0100 0240 0090    0740 0800
37018 0  0085 0140 0130 1 02.4 00.1 02.4 1 0800 0750 1     0140 0090 0130 01.9 00.1 02.4  0090 0530 0100    0680 0730
37018 1                                                    0180 0250 0190 01.8 00.2 01.9  0130 0680 0130    0700 0720
37018 2                                                    0190 0060 0140 03.8 00.6 02.9                    0670 0670
37018 3                                                    0110 0060 0130 01.7 00.2 02.2  0090 0580 0120    0600 0620
37018 4                                                    0200 0050 0160 02.2 00.1 01.8  0120 0980 0110    0540 0580
37019 0  0095 0060 0065 1 00.3 00.1 00.1 1 0900 0900 1     0090 0040 0060 00.2 00.2 00.2  0020 0130 0020    0850 0860
37019 1                                                    0070 0020 0050 00.3 00.3 00.3  0040 0130 0060    0770 0820
37020 0  0150 0430 0170 1 02.6 01.7 02.5 2 1050 1050 1     0230 0160 0150 02.4 00.9 01.6  0090 0440 0110    0990 1000
37021 0  0210 0035 0315 1 05.5 00.2 07.1 2 0800 0800 1     0210 0030 0270 04.8 00.3 06.7  0080 0160 0100    0750 0750
37022 0  0180 0340 0190 1 02.6 05.6 02.7 1 1350 1350 1     0190 0240 0160 02.9 06.2 02.2  0200 0140 0080    1200 1230
37022 1                                                    0160 0180 0170 01.6 04.8 02.1  0080 0150 0080    0870 0930
37022 2                                                    0210 0240 0200 02.1 05.2 02.7                    0780 0820
37022 3                                                    0210 0240 0190 03.9 05.3 03.9  0120 0180 0120    0940 0940
37022 4                                                    0170 0170 0140 01.3 02.8 00.6  0120 0220 0110    0950 0940
37023 0  0025 0025 0040 1 00.7 00.5 00.8 1 0900 0900 1     0080 0020 0050 00.3 00.3 00.4  0080 0160 0040    0830 0860
37023 1                                                    0250 0070 0260 00.3 00.2 00.3                    0760 0790
37023 2                                                    0210 0090 0140 00.6 00.2 00.7                    0670 0710
37023 3                                                    0350 0020 0030 00.5 00.1 00.5  0070 0120 0070    0780 0800
37023 4                                                    0350 0030 0050 00.7 00.2 00.6  0070 0150 0070    0810 0810
37024 0  0235 0040 0170 1 04.9 00.1 04.8 2 0900 0900 1     0180 0140 0190 04.3 00.4 05.4  0100 0280 0110    1000 1000
37024 1                                                    0160 0170 0150 03.4 00.7 03.7                    0790 0780
37024 2                                                    0120 0050 0100 02.4 00.9 01.9                    0700 0720
37024 3                                                    0150 0050 0160 01.2 00.2 02.2  0100 0400 0100    0720 0720
37024 4                                                    0240 0080 0160 01.2 00.2 01.5  0080 0220 0090    0670 0720
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

```
      S   ---------D E Q    I D L E    T E S T----------    ----------------H T S    I D L E    T E S T--------------------
      E   --------HC-------  --------CO-------  ----RPM---   ------HC--------  ------CO-------  ------NOX------  --RPM---
EPANO Q   1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND
37025 0   0100 0045 0150 1 03.3 00.6 03.1 2 0850 0850 1   0210 0030 0110 03.8 00.3 02.7 0090 0250 0100 0800 0850
37025 1                                                   0160 0040 0140 03.8 00.9 03.7 0100 0240 0110 0780 0830
37025 2                                                   0190 0090 0140 03.7 00.4 03.0                0890 0890
37025 3                                                   0190 0080 0190 02.3 00.3 03.0 0100 0280 0110 1110 1140
37025 4                                                   0240 0080 0220 01.8 00.3 02.4 0140 0300 0150 1160 1170

37026 0   0040 0025 0060 1 00.8 00.1 00.6 1 0700 0800 1   0350 0010 0040 01.3 00.3 01.0 0070 0140 0060 0640 0710
37026 1                                                   0350 0030 0060 01.2 00.2 00.9                0790 0760
37026 2                                                   0060 0030 0080 00.6 00.1 00.5                0770 0730
37026 3                                                   0030 0020 0030 00.4 00.2 00.4 0080 0170 0080 0790 0850
37026 4                                                   0060 0030 0050 00.5 00.1 00.4 0080 0150 0080 0710 0750

37027 0   0040 0035 0075 1 00.6 00.1 00.5 1 0850 0880 1   0050 0020 0060 01.0 00.1 00.5 0030 0120 0040 0810 0830
37027 1                                                   0190 0080 0170 00.4 00.1 00.4                0730 0740
37027 2                                                   0170 0250 0210 00.4 00.2 00.4                0700 0790
37027 3                                                   0170 0050 0160 00.4 00.1 00.5 0050 0110 0070 0700 0740
37027 4                                                   0350 0030 0130 00.2 00.1 00.4 0040 0090 0040 0880 0780

37028 0   0065 0035 0075 1 02.5 00.5 02.1 2 0800 0800 1   0100 0030 0060 03.6 00.3 02.7 0040 0320 0040 0650 0680
37028 1                                                   0120 0030 0110 03.4 00.9 02.9 0100 0140 0090 0690 0680
37028 2                                                   0160 0040 0140 03.7 00.5 03.6                0600 0610
37028 3                                                   0080 0030 0060 01.8 00.1 01.8 0070 0390 0080 0640 0640
37028 4                                                   0130 0030 0070 01.4 00.2 01.1 0060 0280 0060 0640 0620

37029 0   0055 0025 0095 1 00.8 00.3 01.2 1 0700 0700 1   0090 0030 0090 00.7 00.2 00.7 0090 0320 0110 0700 0720
37029 1                                                   0080 0030 0120 00.7 00.2 01.4                0700 0720
37029 2                                                   0140 0030 0110 00.5 00.2 00.8                0640 0720
37029 3                                                   0100 0050 0100 01.1 00.2 00.9 0110 0220 0110 0590 0630
37029 4                                                   0060 0030 0050 00.3 00.1 00.1 0080 0160 0080 0650 0650

37030 0   0606 2000 0710 2 00.2 00.2 00.4 1 0850 0850 1   0340 1760 0660 00.2 00.3 00.2 0050 0900 0070 0730 0800
37030 1                                                   0470 1050 0400 00.5 00.4 00.7                0700 0750
37030 2                                                   0120 0770 0140 00.5 00.3 00.9                0750 0820
37030 3                                                   0100 0620 0100 00.1 00.3 00.1 0050 0250 0060 0720 0740
37030 4                                                   0240 0970 0240 00.6 00.3 00.4 0080 0560 0080 0730 0710

37031 0   0055 0055 0080 1 00.6 00.1 00.5 1 0900 0900 1   0090 0050 0050 00.3 00.2 00.4 0050 0190 0060 0750 0820
37031 1                                                   0050 0030 0090 00.2 00.1 00.3                0640 0720
37031 2                                                   0130 0080 0090 00.5 00.1 00.4                0710 0770
37031 3                                                   0120 0060 0060 00.3 00.2 00.3 0050 0130 0060 0700 0730
37031 4                                                   0070 0070 0050 00.2 00.1 00.2 0060 0160 0070 0700 0740

37032 0   0065 0030 0115 1 00.1 00.4 00.1 1 0900 0900 1   0080 0020 0110 00.3 00.1 00.2 0110 0180 0080 0920 0850
37032 1                                                   0050 0020 0080 00.2 00.1 00.1 0060 0210 0060 0870 0860
37032 2                                                   0240 0050 0210 00.2 00.2 00.2 0070 0230 0080 0720 0740
37032 3                                                   0780 0080 0240 00.2 00.1 00.2 0050 0180 0070 0650 0700

37033 0   0145 0070 0130 1 04.0 00.1 03.1 1 0900 0900 1   0150 0010 0100 02.4 00.3 02.4 0110 0180 0120 0820 0860
37033 1                                                   0240 0060 0170 02.7 00.9 02.6 0090 0130 0090 0820 0860
37033 2                                                   0060 0030 0060 00.7 00.9 00.7                0830 0860
37033 3                                                   0120 0030 0080 00.9 00.8 00.8 0040 0150 0060 0790 0840
37033 4                                                   0130 0030 0110 02.2 00.7 02.1 0110 0220 0120 0810 0840

37034 0   0250 0045 0295 1 06.1 00.4 06.5 2 0800 0800 1   0300 0130 0260 05.2 00.3 05.3 0120 0680 0120 0700 0700
37034 1                                                   0250 0050 0240 05.2 00.6 05.3 0070 0320 0080 0710 0700
37034 2                                                   0390 0100 0270 06.9 00.8 05.6 0100 0320 0110 0610 0690
37034 3                                                   0290 0080 0270 06.1 00.2 06.0 0100 0300 0140 0720 0760
37034 4                                                   0360 0660 0300 06.9 00.9 06.7 0130 0520 0140 0740 0740

37035 0   0175 0050 0200 1 05.1 00.3 05.1 2 0900 0900 1   0270 0100 0230 03.8 00.5 04.6 0150 0450 0160 0700 0770
37035 1                                                   0130 0040 0080 00.3 00.2 00.3 0100 0230 0090 0680 0750
37035 2                                                   0140 0050 0130 01.7 00.4 01.7                0760 0780
37035 3                                                   0130 0200 0150 01.3 00.4 02.6 0100 0400 0160 0770 0860
37035 4                                                   0120 0060 0120 01.1 00.5 01.8 0110 0290 0120 0670 0740

37036 0   0020 0020 0050 1 00.5 00.1 00.5 1 0900 0900 1   0060 0040 0050 00.6 00.1 00.6 0070 0230 0080 0780 0800
37036 1                                                   0050 0030 0050 00.6 00.1 00.6 0050 0160 0060 0730 0780
37036 2                                                   0110 0050 0110 00.9 00.2 00.9                0750 0800
37036 3                                                   0050 0040 0040 00.3 00.1 00.3 0070 0360 0080 0880 0920
37036 4                                                   0040 0020 0040 00.5 00.1 00.4 0060 0260 0070 0910 0910

37037 0   0020 0020 0030 1 01.2 00.1 01.2 1 1100 1100 1   0060 0040 0050 01.7 00.2 01.7 0050 0140 0060 0950 0910
37037 1                                                   0050 0120 0060 01.3 00.2 01.3 0050 0090 0060 1040 1060
37037 2                                                   0100 0740 0170 02.2 00.4 02.2                0950 0910
37037 3                                                   0150 0100 0090 01.2 00.2 01.0 0060 0120 0080 1210 1230
37037 4                                                   0540 0140 0320 00.5 00.2 00.5 0060 0130 0070 0980 1000

37038 0   0250 0120 0195 1 04.1 04.2 03.9 2 1000 1000 1   0300 0130 0240 04.9 03.2 03.8                0450 0960
37038 1                                                   0160 0070 0110 00.5 01.3 00.4 0060 0200 0060 0850 0870
37038 2                                                   0220 0120 0150 00.2 00.7 00.2 0060 0320 0060 0790 0830

37039 0   0705 0080 0350 1 03.0 01.1 02.6 1 0800 0850 1   0480 0120 0310 01.9 00.2 01.9                0700 0770
37039 1                                                   0400 0120 0250 02.1 00.2 02.5 0100 0260 0120 0710 0810
37039 2                                                   0620 0070 0170 00.9 00.2 01.2 0060 0310 0100 0610 0760

37040 0   0135 0115 0355 1 04.0 01.6 04.0 2 0750 0750 1   0190 0080 0170 02.2 00.4 01.7 0100 0810 0100 0680 0650
37040 1                                                   0130 0030 0120 01.7 00.2 01.9 0110 1100 0120 0640 0650
37040 2                                                   0200 0060 0140 02.9 00.2 01.9 0120 0900 0120 0680 0680

47001 0   0440 0800 0590 2 06.6 00.6 06.4 2 0700 0700 1   0470 0160 0470 05.8 00.6 05.7 0120 0480 0120 0780 0830
47001 1                                                   0310 0150 0320 02.2 03.4 02.9 0130 0540 0120 0740 0750
47001 2                                                   0350 0040 0290 04.0 00.3 04.8 0070 0290 0070 0640 0650
47001 3                                                   0340 0050 0310 05.1 00.3 05.6 0080 0520 0090 0530 0550
47001 4                                                   0290 0680 0270 05.6 00.3 05.0 0100 0620 0100 0750 0810

47002 0   0255 0065 0310 1 08.9 01.0 08.9 2 0700 0700 1   0200 0070 0240 07.0 00.7 07.5 0140 0500 0140 0730 0730
47002 1                                                   0470 0140 0520 06.7 00.8 07.0 0150 0920 0150 1060 1060
47002 2                                                   0430 0140 0410 07.1 00.9 06.1                0840 0850
47002 3                                                   0490 0400 0460 06.7 00.7 06.5 0160 1150 0140 0900 0880
47002 4                                                   0450 0180 0450 04.4 00.9 04.3 0160 0780 0160 0960 1030

47003 0   0250 0100 0265 1 07.8 00.5 07.4 2 0600 0650 1   0240 0110 0250 06.3 00.4 06.8 0120 0900 0120 0590 0590
47003 1                                                   1590 0200 1250 05.8 00.5 04.7 0120 0360 0110 0380 0390
47003 2                                                   0410 0110 0430 02.6 00.4 03.5                0490 0510
47003 3                                                   0150 0070 0170 01.8 00.3 03.6 0120 0690 0130 0650 0680
47003 4                                                   0200 0090 0210 04.5 00.3 05.1 0120 0600 0140 0640 0650
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APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

EPANO	SEQ	DEQ IDLE TEST HC			S	CO			S	RPM		S	HTS IDLE TEST HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
47004	0	0220	0070	0225	1	08.1	00.6	07.6	2	0850	0850	1	0210	0100	0240	07.5	01.1	07.4	0150	1100	0150	0770	0750
47004	1												0250	0090	0260	08.2	01.1	08.6	0160	0900	0160	0740	0730
47004	2												0240	0060	0280	07.7	00.9	07.9				0710	0690
47004	3												0240	0060	0230	08.5	00.6	08.7	0120	0650	0130	0800	0790
47004	4												0150	0050	0140	04.4	00.2	03.4	0170	1050	0160	0770	0790
47005	0	0090	0060	0130	1	01.1	00.2	01.4	1	0850	0850	1	0100	0060	0100	00.4	00.3	00.8	0120	0180	0120	0770	0800
47005	1												0050	0030	0090	00.5	00.5	00.9	0090	0160	0090	0750	0770
47005	2												0070	0030	0090	00.2	00.4	00.5				0720	0770
47005	3												0050	0030	0080	00.2	00.3	00.5	0070	0410	0100	0730	0790
47005	4												0170	0030	0160	02.7	00.2	03.2	0120	0200	0130	0780	0790
47006	0	0100	0050	0160	1	02.9	00.1	02.5	1	0800	0800	1	0090	0030	0090	00.8	00.1	01.5	0105	0160	0120	0760	0800
47006	1												0150	0050	0090	00.2	00.5	00.4	0080	0600	0100	0660	0680
47006	2												0160	0060	0150	00.2	00.1	00.3				0650	0680
47006	3												0100	0050	0090	00.2	00.2	00.3	0050	0120	0070	0580	0630
47006	4												0160	0050	0120	00.2	00.2	00.2	0060	0140	0080	0640	0660
47007	0	0185	0175	0220	1	02.2	03.1	02.3	1	1200	1200	2	0290	0170	0240	02.6	03.1	03.1	0140	0260	0140	1050	1120
47007	1												0370	0130	0270	00.3	02.0	00.4	0080	0280	0080	0690	0690
47007	2												0310	0130	0290	00.3	02.0	00.5				0690	0780
47007	3												0420	0190	0390	00.2	01.9	00.4	0060	0210	0070	0670	0710
47008	0	0182	0135	0395	1	00.2	00.4	00.2	1	0800	0800	1	0140	0130	0200	00.4	00.2	00.3	0120	0360	0120	0750	0820
47008	1												1500	0180	1370	00.4	00.3	00.3	0070	0460	0080	0820	0820
47008	2												0460	0110	0440	00.5	00.2	00.5				0640	0770
47008	3												0270	0060	0130	00.5	00.2	00.9	0080	0350	0100	0690	0800
47008	4												0310	0080	0140	00.6	00.2	00.4	0060	0190	0090	0720	0840
47009	0	0060	0050	0100	1	01.4	00.6	00.8	1	0600	0600	1	0080	0030	0060	01.9	00.6	01.3	0060	0130	0060	0700	0660
47010	0	0135	0180	0180	1	02.0	03.9	02.3	1	1000	1000	1	0170	0180	0180	01.1	03.0	02.2	0130	0170	0130	0860	0890
47010	1												0130	0160	0160	01.1	03.2	02.0				0830	0870
47010	2												0150	0190	0170	01.7	03.9	02.2				0870	0890
47010	3												0130	0150	0140	01.7	03.5	02.4	0140	0160	0135	0860	0860
47010	4												0160	0180	0200	01.0	03.4	02.2	0150	0180	0150	0870	0910
47011	0	0150	0061	0170	1	05.2	00.6	05.3	2	0900	0900	1	0140	0060	0140	03.5	00.5	04.3	0080	0600	0100	0760	0830
47012	0	0240	0130	0270	1	08.7	03.6	08.9	2	0900	0900	1	0260	0120	0250	08.1	02.0	08.4	0100	0210	0100	0970	1000
47012	1												0450	0200	0300	05.8	01.7	05.9				0710	0770
47012	2												0450	0130	0360	09.6	02.1	09.4				0870	0920
47012	3												2350	1180	2090	03.5	00.3	03.3	0080	0180	0090	0990	1000
47012	4												1350	1810	1630	00.1	00.2	00.2	0090	0150	0100	1010	1420
47013	0	0135	0055	0145	1	05.2	01.0	05.4	2	0850	0850	1	0170	0060	0180	05.6	01.7	07.3	0090	0260	0090	0740	0730
47013	1												0100	0050	0090	02.5	02.1	02.5	0080	0120	0070	0780	0770
47013	2												0290	0170	0180	03.6	04.1	02.5				1100	0960
47013	3												0060	0050	0090	00.6	01.6	00.8	0100	0280	0100	0850	0850
47013	4												0200	0070	0090	03.8	01.5	00.9	0140	0390	0150	0680	0820
47014	0	0135	0055	0560	1	00.4	00.2	00.1	1	0800	0800	1	0270	0050	0210	00.3	00.2	00.4	0040	0080	0050	0650	0680
47014	1												0260	0060	0300	00.4	00.3	00.2	0030	0070	0030	0650	0670
47014	2												0380	1250	0970	00.1	00.4	00.1				0790	0780
47014	3												0230	0030	0220	00.1	00.2	00.1	0040	0080	0050	0780	0790
47014	4												0340	0090	0680	00.2	00.3	00.3	0050	0100	0050	0790	0800
47015	0	0200	0055	0190	1	00.1	00.1	00.1	1	0850	0850	1	0260	0090	0130	00.2	00.2	00.1	0080	0250	0070	0730	0810
47015	1												0110	0020	0250	00.2	00.3	00.2	0100	0270	0090	0800	0800
47015	2												0480	0090	0260	00.2	00.1	00.1				0730	0770
47015	3												0180	0040	0330	00.2	00.1	00.2	0070	0290	0080	0730	0760
47015	4												0160	0030	0190	00.2	00.1	00.1	0120	0340	0110	0800	0780
47016	0	0040	0030	0050	1	00.1	00.1	00.0	1	1200	1200	1	0060	0020	0051	00.1	00.1	00.0	0065	0200	0080	1140	1150
47016	1												0240	0100	0090	00.8	00.3	00.1				1340	1210
47016	2												0300	0060	0190	00.1	00.2	00.1				0810	0910
47016	3												0590	0080	0310	00.1	00.0	00.1	0060	0170	0070	0890	0930
47016	4												0090	0030	0080	00.0	00.0	00.0	0080	0160	0080	0960	0970
47017	0	0035	0035	0055	1	00.9	00.2	00.9	1	1000	1000	1	0090	0030	0030	00.8	00.1	00.7	0060	0240	0080	0880	0990
47017	1												0080	0050	0070	00.9	00.2	00.7	0080	0240	0060	0880	0940
47017	2												0080	0160	0060	00.8	00.0	00.9				0870	0930
47017	3												0080	0080	0060	00.9	00.2	00.9	0060	0130	0060	0940	0980
47017	4												0190	0120	0110	00.6	00.2	00.7	0080	0110	0070	0950	1020
47018	0	0030	0030	0080	1	00.9	00.6	00.8	1	1000	1000	1	0050	0010	0030	01.1	00.4	00.7				0930	1000
47018	1												0080	0030	0060	01.5	00.4	01.1				0690	0770
47018	2												0250	0150	0150	01.3	00.3	00.8				0700	0790
47018	3												0090	0040	0080	01.7	00.4	01.0	0050	0210	0080	0660	0770
47018	4												0060	0030	0050	01.8	00.5	01.4	0070	0160	0080	0700	0770
47019	0	0050	0030	0055	1	01.0	00.2	00.6	1	1150	1150	2	0090	0020	0060	01.9	00.3	00.9	0100	0240	0090	0990	1100
47019	1												0210	0100	0120	01.7	00.8	01.5				0890	0980
47019	2												0090	0050	0060	02.1	00.9	01.8				1020	1040
47019	3												0090	0040	0060	01.9	00.6	01.5	0110	0210	0110	1010	1060
47019	4												0090	0060	0090	01.6	00.9	01.5	0110	0240	0120	1080	1160
47020	0	1170	0240	1125	2	02.1	00.6	02.0	1	1050	1100	1	1220	0120	0970	02.5	00.2	02.8	0070	0260	0090	0750	0920
47020	1												0510	0070	0470	02.6	00.1	02.6	0090	0170	0090	0890	0960
47020	2												0210	0070	0200	03.8	00.2	03.6				0930	0970
47020	3												1240	0170	1020	02.3	00.2	02.4	0060	0160	0060	0890	0960
47020	4												1560	0150	1890	03.1	00.2	02.8	0130	0230	0120	0990	1040
47021	0	0155	0235	0145	1	01.6	01.6	01.1	1	0900	0900	1	0160	0210	0170	00.6	00.4	00.5	0100	0260	0110	0730	0780
47021	1												0250	0160	0160	01.2	00.7	01.3				0680	0820
47021	2												0260	0100	0170	02.0	00.5	01.9				0790	0850
47021	3												0220	0050	0120	00.9	00.4	01.1	0100	0350	0110	0860	0950
47021	4												1160	0170	1090	00.2	00.1	00.2	0070	0250	0060	0790	0780
47022	0	0265	0160	0235	1	07.9	04.2	06.7	2	1200	1200	1	0320	0150	0290	07.0	03.8	08.9	0120	0180	0120	1040	1110
47022	1												0290	0130	0240	07.0	03.5	06.6				0990	1050
47022	2												0280	0170	0240	06.6	03.5	07.1				0990	1080
47022	3												0330	0160	0280	08.3	03.1	08.5	0140	0220	0150	0980	1040
47022	4												0160	0190	0210	02.5	05.6	03.5	0110	0190	0120	0860	0980

APPENDIX B - IDLE TEST RESULTS

1972 - 74 EUGENE

		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
47023	0	0270	0155	0325	1	08.2	03.6	07.7	2	1050	1050	1	0380	0100	0340	06.5	01.7	06.9	0120	0300	0130	0920	1000
47023	1												0270	0180	0230	03.5	01.1	03.1				0890	0860
47023	2												0380	0170	0310	04.6	00.7	04.5				0790	0800
47023	3												0460	0170	0360	05.7	02.4	05.8	0100	0220	0110	0840	0900
47023	4												0830	0160	0420	05.1	01.8	05.8	0120	0220	0120	0750	0870
47024	0	0085	0050	0130	1	00.2	00.1	00.1	1	0700	0700	1	0120	0050	0130	00.5	00.1	00.2	0090	0230	0080	0630	0640
47024	1												0360	0020	0070	00.2	00.2	00.2				0640	0670
47025	0	0100	0265	0140	1	02.3	05.6	02.1	1	1200	1200	1	0160	0190	0820	00.3	04.4	00.3	0050	0200	0050	0740	0710
47025	1												0250	0120	0170	00.2	03.2	00.2	0050	0160	0060	0850	0860
47025	2												0580	0250	0480	00.3	02.9	00.3				0670	0730
47025	3												1330	0130	1830	00.3	01.0	00.3	0040	0220	0040	0540	0550
47025	4												0180	0050	0190	00.2	00.6	00.1	0050	0220	0070	1040	1060
47026	0	0050	0025	0130	1	01.6	01.0	01.3	1	0850	0850	1	0100	0040	0080	01.8	00.4	01.2	0070	0120	0080	0730	0800
47026	1												0090	0030	0080	00.6	00.1	01.1				0610	0650
47026	2												0180	0050	0080	00.8	00.4	00.9				0800	0790
47026	3												0300	0090	0110	02.0	00.2	01.1	0060	0160	0060	0500	0720
47026	4												0170	0060	0120	01.7	00.4	00.9	0080	0100	0080	0690	0720
47027	0	0050	0045	0065	1	00.9	00.2	00.8	1	1000	1000	1	0170	0060	0080	00.7	00.2	00.7	0060	0120	0070	0870	0940
47027	1												0050	0030	0050	00.9	00.3	00.8	0030	0080	0040	0940	0970
47027	2												0090	0030	0050	00.9	00.2	00.7				0880	0940
47027	3												0060	0030	0040	01.0	00.2	00.7	0060	0270	0070	0750	0990
47027	4												0520	0100	0730	01.0	00.2	00.7	0060	0140	0080	0690	0940
47028	0	0178	0085	0075	1	00.9	00.8	00.7	1	1900	1900	2	0230	0120	0090	01.0	00.9	00.7	0210	0410	0210	1570	1600
47028	1												0150	0080	0130	00.3	00.5	00.3				1290	1300
47028	2												0140	0100	0180	00.3	00.7	00.3				0990	1120
47028	3												0200	0090	0160	01.5	00.5	01.2	0120	0320	0120	1010	1130
47028	4												0360	0140	0410	01.7	00.7	01.4	0110	0220	0100	0840	0950
47029	0	0095	0050	0155	1	01.0	01.5	00.3	1	0850	0850	1	0110	0030	0070	00.3	00.4	00.9	0090	0210	0180	0710	1250
47029	1												0190	0100	0170	04.5	03.4	04.5	0120	0140	0130	1180	1120
47029	2												0310	0130	0270	05.7	01.5	05.2				0950	0990
47029	3												0440	0190	0400	08.0	03.3	06.8	0060	0200	0060	0880	0930
47029	4												0140	0090	0130	04.8	02.7	03.7	0130	0200	0140	1070	1080
47030	0	0255	0550	0460	1	03.0	00.3	03.4	2	0850	0850	1	0470	0510	0360	05.1	00.3	04.4	0140	0450	0130	0730	0750
47030	1												0700	0170	0630	00.4	00.3	00.4	0070	0220	0080	0710	0740
47030	2												0540	0090	0480	01.5	00.3	01.7				0750	0800
47030	3												0460	0170	0440	01.5	00.2	01.8	0110	0410	0120	0720	0780
47030	4												0420	0260	0630	03.7	01.0	02.6	0110	0460	0120	0750	0790
47031	0	0140	0040	0190	1	01.8	00.2	01.6	2	0800	0800	1	0170	0170	0190	00.5	00.2	01.2	0120	0420	0130	0790	0840
47031	1												0310	0160	0230	00.7	00.2	01.0	0090	0230	0090	0740	0820
47031	2												0410	0170	0390	01.3	01.2	00.7				0800	0790
47031	3												0190	0100	0230	01.0	00.3	01.4	0100	0300	0100	0820	0820
47031	4												0590	0090	0240	00.6	00.2	01.3	0100	0340	0120	0740	0820
47032	0	0100	0220	0130	1	03.8	07.0	03.1	2	1000	1000	1	0170	0190	0160	05.4	07.1	05.9				0880	0910
47032	1												0230	0240	0180	03.7	06.3	03.2				0800	0860
47032	2												0170	0160	0170	03.6	04.8	03.6	0090	0180	0100	0840	0870
47032	3												0250	0270	0220	04.8	07.2	05.4	0090	0180	0100	0880	0890

APPENDIX B - IDLE TEST RESULTS

1975 - 77 EUGENE

		DEQ IDLE TEST											HTS IDLE TEST										
	SEQ	HC				CO				RPM			HC			CO			NOX			RPM	
EPANO		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
58002	0	0165	0050	0180	1	03.0	00.1	02.9	2	0850	0850	1	0090	0020	0050	00.8	00.0	00.3				0830	0830
58002	1												0090	0020	0070	00.6	00.0	01.2	0110	0300	0120	0870	0880
58002	2												0090	0020	0070	00.8	00.0	00.6	0080	0170	0070	0830	0830
58002	3												0210	0160	0200	04.7	02.3	04.1				0790	0810
58002	4												0160	0050	0160	04.1	00.0	04.2	0110	0200	0110	0860	0820
58003	0	0270	0215	0295	2	07.7	00.6	06.7	2	0800	0800	1	0270	0120	0300	06.7	00.2	07.0	0090	0380	0090	0780	0780
58003	1												0150	0100	0150	03.8	00.0	04.0	0170	0620	0170	0940	0980
58003	2												0190	0180	0220	04.0	00.4	04.3				0710	0710
58003	3												0320	0520	0320	06.8	00.7	06.2				0650	0650
58003	4												0170	0120	0130	01.0	00.6	01.3	0080	0520	0100	0610	0610
58004	0	0125	0170	0225	1	00.1	00.7	00.1	1	0750	0800	1	0130	0040	0060	00.0	00.8	00.0				0690	0750
58004	1												0050	0020	0030	00.2	00.2	00.1	0020	0130	0020	0790	0830
58004	2												0140	0030	0080	00.2	00.3	00.2				0750	0820
58004	3												0030	0020	0030	00.2	00.2	00.2	0070	0060	0025	0850	0870
58004	4												0080	0090	0040	00.2	00.2	00.2	0040	0040	0050	0800	0850
58005	0	0140	0060	0125	1	03.1	00.1	02.9	2	0800	0800	1	0090	0030	0090	01.2	00.0	01.3	0125	0360	0120	0820	0860
58005	1												0270	0090	0310	09.9	00.1	09.9	0140	0680	0140	0750	0740
58005	2												0290	0060	0240	09.9	02.6	09.6	0120	0530	0100	0790	0810
58005	3												0380	0190	0400	09.5	02.8	09.5				0670	0660
58005	4												0410	0110	0440	09.5	00.7	09.9	0120	0450	0140	0650	0620
58006	0	0145	0045	0170	1	04.9	00.5	04.4	2	0650	0650	1	0120	0020	0150	01.7	00.7	01.8	0120	0700	0140	0670	0670
58006	1												0190	0080	0170	02.0	00.2	02.0	0140	0630	0160	0630	0680
58006	2												0160	0040	0170	02.6	00.2	03.5				0640	0680
58006	3												0230	0100	0240	04.4	00.2	05.0	0120	0800	0130	0620	0620
58006	4												0190	0060	0230	03.4	00.2	03.9	0180	0690	0170	0670	0660
58007	0	0040	0030	0050	1	00.2	00.3	00.1	1	0750	0750	1	0030	0010	0030	00.2	00.2	00.3	0060	0240	0070	0700	0720
58007	1												0080	0030	0050	00.5	00.3	00.5	0070	0230	0080	0790	0780
58007	2												0080	0030	0060	00.4	00.3	00.6				0720	0740
58007	3												0070	0050	0060	00.7	00.4	00.4				0770	0750
58007	4												0100	0030	0060	01.6	00.1	00.6	0060	0180	0070	0750	0720
58008	0	0100	0100	0125	1	00.5	00.2	00.5	1	0800	0800	1	0030	0010	0050	00.7	00.1	00.6	0060	0220	0070	0780	0780
58008	1												0090	0030	0050	01.2	00.1	00.7	0100	0260	0100	0790	0820
58008	2												0070	0030	0060	00.6	00.1	00.5				0780	0800
58008	3												0090	0030	0090	00.2	00.3	00.2	0090	0250	0070	0700	0670
58008	4												0050	0030	0050	00.1	00.1	00.1	0120	0340	0110	0990	0950
58009	0	0015	0020	0015	1	00.0	00.0	00.0	1	0800	0800	1	0030	0030	0050	00.0	00.0	00.0	0080	0260	0070	0750	0780
58010	0	0035	0205	0055	1	01.0	00.6	00.8	1	1000	1000	1	0050	0020	0020	00.5	00.4	00.5	0040	0100	0030	0930	0930
58010	1												0120	0060	0080	00.9	00.3	00.8	0040	0060	0040	0920	0920
58010	2												0360	0100	0370	00.2	02.5	00.1				0570	0600
58010	3												0210	0110	0150	04.1	04.2	04.0	0090	0140	0090	0700	0820
58010	4												0250	0140	0130	00.9	00.4	00.7	0050	0120	0050	0810	0870
58011	0	0400	1140	0860	2	05.2	09.5	06.0	2	0600	0600	1	0390	0480	0410	04.1	07.5	04.0	0070	0160	0080	0560	0580
58011	1												0380	0340	0370	08.3	07.9	08.7	0130	0200	0140	0790	0810
58011	2												0370	0320	0380	04.9	08.0	05.0				0570	0570
58011	3												0310	0290	0350	03.0	02.5	03.9				0560	0590
58011	4												0470	0420	0390	04.4	08.0	04.1	0120	0190	0120	0560	0570
58012	0	0045	0025	0040	1	00.0	00.0	00.0	1	0800	0800	1	0050	0030	0040	00.0	00.0	00.0	0040	0420	0060	0790	0820
58012	1												0120	0050	0060	01.4	00.1	00.0	0070	0310	0080	0820	0830
58012	2												0090	0030	0040	00.7	00.0	00.0				0810	0820
58012	3												0050	0030	0050	00.0	00.0	00.0	0060	0260	0070	0840	0840
58012	4												0050	0030	0050	00.0	00.0	00.0	0080	0310	0090	0780	0800
58013	0	0060	0035	0060	1	01.5	00.7	01.4	2	0850	0900	1	0070	0030	0050	01.4	00.6	01.1	0050	0120	0040	0790	0860
58014	0	0050	0015	0050	1	00.0	00.1	00.0	1	0650	0650	1	0060	0020	0060	00.2	00.1	00.0	0070	0160	0060	0770	0680
58014	1												0040	0020	0050	00.1	00.1	00.1	0080	0190	0080	0750	0710
58014	2												0110	0020	0140	00.1	00.1	00.0				0720	0710
58014	3												0090	0030	0120	00.0	00.1	00.0	0060	0200	0070	0750	0700
58014	4												0110	0020	0060	00.1	00.1	00.0	0080	0230	0080	0710	0710
58015	0	0360	0165	0300	1	02.2	00.6	01.9	1	1050	1050	1	0250	0070	0240	01.0	00.2	01.3	0060	0140	0060	1060	1050
58015	1												0120	0050	0110	01.6	00.3	01.7	0160	0240	0150	1090	1110
58015	2												0050	0020	0050	00.4	00.1	00.5				1020	1010
58015	3												0150	0050	0120	01.5	00.2	01.6	0080	0150	0090	0970	0940
58015	4												0060	0010	0030	00.5	00.9	00.6	0130	0220	0140	0830	0850
58016	0	0040	0030	0065	1	01.4	00.5	01.4	1	0900	0900	1	0140	0050	0100	02.5	00.2	01.9	0070	0180	0060	0750	0840
58016	1												0120	0050	0100	00.8	00.1	00.8	0060	0270	0070	0850	0910
58016	2												0170	0060	0130	00.8	00.2	00.7				0780	0880
58016	3												0140	0080	0120	00.2	00.2	00.2	0050	0220	0060	0810	0910
58016	4												0270	0350	0200	00.2	00.2	00.2	0040	0240	0040	0800	0900
58017	0	0095	0030	0050	1	01.1	00.2	00.5	1	1700	1700	2	0200	0040	0340	01.0	00.4	00.8	0080	0130	0070	0870	1010
58017	1												0550	0070	0700	00.3	00.3	00.3	0040	0110	0050	0740	0740
58017	2												0520	0190	0440	00.2	00.3	00.2				0780	0750
58017	3												0380	0120	0400	00.3	00.3	00.3	0080	0140	0080	0840	0830
58017	4												0310	0100	0280	00.2	00.2	00.2	0080	0180	0080	0860	0830
58018	0	0090	0050	0115	1	02.2	00.8	01.9	1	0950	0950	1	0120	0040	0100	01.8	00.6	01.7	0080	0100	0060	0930	0940
58018	1												0150	0050	0140	02.8	00.9	02.7	0070	0090	0070	0870	0840
58019	0	0040	0165	0145	1	00.2	00.6	00.4	1	1400	0950	1	0170	0060	0150	00.3	00.4	00.5	0120	0300	0110	0850	0810
58019	1												0130	0070	0130	00.4	00.3	00.4	0080	0320	0080	0800	0800
58019	2												0270	0080	0250	00.3	00.2	00.3				0850	0790
58020	0	0050	0020	0100	1	00.9	00.2	00.8	1	0900	0900	2	0130	0030	0100	00.8	00.3	00.7	0050	0080	0060	0740	0790
58020	1												0150	0040	0180	01.4	00.3	00.9	0070	0120	0070	0680	0760
58020	2												0090	0030	0080	00.8	00.3	00.6				0860	0860
58020	3												0140	0030	0100	01.0	00.3	00.8	0040	0075	0040	0740	0800
58020	4												0170	0030	0160	01.8	00.3	01.5	0040	0080	0050	0680	0720
58021	0	0060	0070	0085	1	01.1	00.1	01.1	2	0850	0850	1	0080	0050	0080	01.3	00.1	00.9	0090	0120	0080	0800	0840
58021	1												0080	0030	0060	01.0	00.0	01.0	0080	0200	0080	0700	0700
58021	2												0080	0070	0080	01.1	00.1	01.1				0830	0830
58021	3												0160	0060	0100	01.0	00.1	01.0	0060	0120	0070	0810	0830
58021	4												0060	0020	0050	01.3	00.3	01.1	0080	0140	0080	0850	0850

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                                        APPENDIX B - IDLE TEST RESULTS
                                           1975 - 77  EUGENE
      S  ----------D E Q   I D L E   T E S T----------   -------------H T S   I D L E   T E S T----------------
      E  ------HC------   ------CO------   ---RPM---     ------HC------ ------CO------ -----NOX------ ---RPM---
EPAND Q  1ST  2500 2ND  S 1ST  2500 2ND  S 1ST  2ND  S   1ST  2500 2ND  1ST  2500 2ND  1ST  2500 2ND  1ST  2ND
58022 0  0100 0050 0130 1 00.1 00.2 00.1 1 0750 0750 1   0170 0060 0140 00.5 00.1 00.5 0060 0180 0070 0600 0640
58022 1                                                  0100 0050 0090 00.3 00.1 00.4 0050 0130 0040 0720 0780
58022 2                                                  0280 0080 0470 00.3 00.2 00.3                0760 0790
58022 3                                                  1300 0170 1120 00.1 00.1 00.1 0030 0120 0040 0630 0700
58022 4                                                  1170 0130 1250 00.2 00.1 00.2 0040 0140 0050 0710 0740

58023 0  0210 0070 0220 1 02.4 00.2 01.6 2 0700 0700 1   0280 0100 0260 01.0 00.2 00.7 0120 0340 0110 0660 0660

58024 0  0095 0060 0130 1 03.1 00.3 03.0 2 0900 0900 1   0120 0050 0120 02.6 00.4 02.9 0140 0180 0140 0900 0960

58025 0  0185 0080 0200 1 03.8 00.1 03.9 2 0800 0800 1   0250 0030 0240 04.2 00.1 04.9 0110 0390 0120 0780 0770
58025 1                                                  0250 0080 0220 02.9 00.0 02.6 0080 0210 0080 0730 0770
58025 2                                                  0470 0090 0380 07.4 00.1 06.5                0740 0760
58025 3                                                  0230 0060 0220 03.7 00.0 03.7 0090 0280 0080 0770 0770
58025 4                                                  0250 0050 0210 00.3 00.0 03.9 0100 0450 0110 0780 0810

58026 0  0175 0140 0115 1 00.2 00.1 00.2 1 0850 0850 1   0130 0150 0080 00.0 00.2 00.0 0120 0360 0080 0800 0740
58026 1                                                  0130 0180 0080 00.3 01.4 00.0 0050 0180 0060 0810 0800
58026 2                                                  0210 0170 0090 00.9 02.7 00.0                0870 0820
58026 3                                                  0050 0090 0050 00.0 00.9 00.0 0060 0240 0060 0730 0700
58026 4                                                  0050 0100 0050 00.0 01.8 00.0 0800 0260 0090 0770 0770

58027 0  0140 0080 0160 1 02.6 01.9 02.5 1 0900 0900 1   0250 0040 0140 01.6 00.3 01.8 0090 0170 0080 0660 0840
58027 1                                                  0190 0020 0090 00.0 00.0 00.0 0040 0180 0050 0910 0890
58027 2                                                  0310 0050 0200 00.0 00.0 00.0                0730 0900
58027 3                                                  0210 0030 0130 00.0 00.0 00.0 0060 0250 0080 0760 0920
58027 4                                                  0750 0110 0380 01.0 00.8 00.9 0080 0260 0110 0710 0890

58028 0  0195 0055 0175 1 00.0 00.0 00.0 1 0600 0600 1   0260 0010 0260 00.0 00.0 00.0 0040 0180 0040 0640 0620
58028 1                                                  0310 0020 0210 00.0 00.0 00.0                0600 0630
58028 2                                                  0090 0030 0090 00.0 00.0 00.3                0790 0850
58028 3                                                  0250 0050 0120 00.8 00.0 00.7 0080 0150 0090 0710 0880
58028 4                                                  0170 0040 0120 01.4 00.5 00.7 0100 0280 0100 0800 0930

58029 0  0575 0250 0940 2 03.3 01.6 03.3 2 0800 0800 1   0640 0240 0690 03.0 01.0 02.3 0080 0130 0080 0710 0710
58029 1                                                  0330 0130 0520 01.6 00.1 03.4                0720 0750
58029 2                                                  0300 0160 0620 02.1 00.4 02.6                0700 0730
58029 3                                                  0340 0080 0570 01.7 00.2 02.3 0090 0160 0100 0690 0690
58029 4                                                  0300 0240 0680 02.6 00.2 02.6 0110 0160 0100 0660 0700

58030 0  0150 0110 0155 1 02.8 00.5 02.6 2 0950 0950 1   0090 0050 0080 01.5 00.1 01.7 0100 0230 0110 0760 0830
58030 1                                                  0110 0030 0100 01.9 00.3 02.0 0080 0300 0090 0600 0840

58031 0  0175 0065 0190 1 05.1 00.2 04.8 2 1150 1150 1   0170 0020 0160 03.5 00.0 03.9 0090 0130 0100 1030 1080
58031 1                                                  0230 0120 0220 04.1 00.9 04.2                1020 1050
58031 2                                                  0230 0100 0220 04.1 00.1 03.7                0960 1020
58031 3                                                  0260 0110 0240 04.8 00.8 05.7 0120 0320 0120 1040 1080
58031 4                                                  0250 0030 0210 02.1 00.0 02.2 0100 0230 0100 0730 0760

58032 0  0240 0075 0305 1 00.1 00.1 00.1 1 0800 0800 1   0220 0020 0190 00.2 00.2 00.2 0060 0130 0060 0700 0770
58032 1                                                  0140 0040 0120 00.0 00.2 00.1 0030 0070 0020 0640 0690
58032 2                                                  0360 0030 0300 00.1 00.2 00.1                0650 0720
58032 3                                                  0180 0040 0280 00.1 00.1 00.1 0040 0120 0050 0710 0710
58032 4                                                  0390 0050 0300 00.1 00.1 00.1 0040 0140 0060 0600 0700

58033 0  0145 0065 0195 1 02.4 00.1 02.7 1 1000 1000 1   0160 0030 0170 02.6 00.2 03.1 0080 0150 0090 0930 0920
58033 1                                                  0150 0060 0170 02.5 00.2 02.4                0760 0780
58033 2                                                  0050 0030 0050 00.8 00.1 00.6                1170 1200
58033 3                                                  0320 0030 0190 04.7 00.2 03.8 0070 0130 0050 0730 0850
58033 4                                                  0380 0080 0380 06.1 00.2 05.5 0080 0160 0070 0810 0790

58034 0  0195 0060 0275 1 02.0 01.2 02.5 2 0800 0800 1   0350 0070 0340 02.4 00.9 01.8 0090 0400 0100 0800 0810
58034 1                                                  0120 0030 0110 02.6 00.4 02.2                0590 0610
58034 2                                                  0120 0040 0120 02.8 00.5 02.4 0100 0240 0120 0600 0610
58034 3                                                  0080 0040 0090 00.0 01.2 00.0 0060 0230 0060 0660 0630

58035 0  0075 0045 0120 1 01.9 00.6 03.2 2 1100 1100 1   0130 0050 0120 02.1 00.3 02.0                1120 1010
58035 1                                                  0070 0040 0090 00.4 00.0 00.4 0050 0100 0040 0970 0950
58035 2                                                  0130 0050 0080 01.4 00.0 00.5 0140 0540 0120 0960 1040

58036 0  0090 0075 0135 1 02.0 00.1 02.2 2 0750 0750 1   0110 0060 0100 01.5 00.2 01.5 0100 0130 0100 0730 0740

58037 0  0090 0060 0150 1 00.3 00.1 00.1 1 1000 1000 1   0100 0060 0150 00.4 00.2 00.2 0060 0100 0060 0870 0850
58037 1                                                  0150 0020 0070 00.1 00.1 00.1 0060 0100 0060 0850 0880

58119 0  0195 0055 0270 1 06.8 00.3 07.0 2 1200 1200 2   0320 0080 0270 07.9 00.5 07.3                1140 1200
58119 1                                                  0250 0050 0180 05.1 00.1 04.6 0140 0150 0140 1290 1320
58119 2                                                  0300 0060 0200 06.7 00.6 05.6 0120 0230 0140 1000 1060

68001 0  0240 0345 0260 2 00.7 00.2 00.6 1 0750 0800 2   0230 0250 0150 00.4 00.3 00.3                0760 0780
68001 1                                                  0420 0320 0200 00.1 00.2 00.0 0140 0210 0120 0700 0750
68001 2                                                  0200 0280 0190 00.3 00.1 00.1 0050 0100 0070 0650 0690
68001 3                                                  0390 0400 0410 00.2 00.1 00.1                0660 0680
68001 4                                                  0360 0230 0470 01.6 00.1 01.9 0100 0220 0110 0690 0740

68002 0  0090 0045 0120 1 00.7 00.1 00.4 1 0600 0600 1   0130 0030 0120 00.3 00.1 00.2                0540 0530
68002 1                                                  0130 0050 0110 00.2 00.2 00.6 0130 0670 0160 0590 0650
68002 2                                                  0130 0040 0100 00.7 00.2 00.5 0120 0410 0120 0680 0690
68002 3                                                  0090 0030 0110 00.3 00.1 00.4                0660 0690
68002 4                                                  0090 0030 0100 00.5 00.2 01.0 0110 0780 0140 0640 0670

68003 0  0310 0235 0380 2 04.1 00.2 03.8 2 0900 0900 1   0280 0250 0380 03.0 00.1 03.5                0880 0930
68003 1                                                  0400 0200 0680 02.4 00.4 00.7 0120 0260 0090 0840 0780
68003 2                                                  0340 0130 0360 00.8 00.1 00.5 0050 0120 0050 0730 0700
68003 3                                                  0530 0160 0370 07.1 00.4 00.5                0900 0920
68003 4                                                  0200 0080 0190 02.6 00.2 02.5 0100 0180 0110 0880 0910

68004 0  0085 0025 0130 1 02.7 00.1 02.6 2 0750 0750 1   0100 0040 0100 01.9 00.0 02.7                0740 0760
68004 1                                                  0130 0020 0100 02.8 00.0 03.2 0130 0310 0140 0700 0740
68004 2                                                  0100 0030 0100 03.7 00.0 03.7                0770 0770
68004 3                                                  0170 0050 0170 04.3 00.5 04.3                0640 0680
68004 4                                                  0190 0130 0180 05.9 00.0 06.0 0120 0220 0130 0700 0740
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APPENDIX B - IDLE TEST RESULTS

1975 - 77 EUGENE

		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
68005	0	0060	0050	0075	1	00.1	00.1	00.1	1	0700	0700	1	0050	0020	0060	00.1	00.1	00.1	0090	0290	0090	0660	0660
68006	0	0315	0205	0345	2	05.2	00.4	05.0	2	0900	0900	1	0290	0140	0370	04.2	00.2	04.4	0120	0900	0120	0820	0850
68006	1												0400	0100	0400	05.6	00.4	05.8	0160	1600	0160	0810	0820
68007	0	0040	0095	0040	1	00.0	00.0	00.0	1	0900	0900	1	0050	0060	0040	00.0	00.0	00.0	0060	0340	0060	0950	0980
68007	1												0050	0030	0070	00.0	00.0	00.0	0080	0400	0090	1010	1020
68007	2												0100	0030	0080	00.0	00.1	00.0				0990	1000
68007	3												0320	0060	0110	00.9	00.5	00.0	0120	0400	0090	0920	0980
68007	4												0340	0060	0080	00.6	00.4	00.0	0160	0580	0100	0900	0980
68008	0	0020	0025	0025	1	00.0	00.1	00.0	1	1050	1050	1	0060	0030	0020	00.2	00.1	00.0	0060	0440	0060	0910	0900
68009	0	0620	0155	0205	1	04.5	00.1	00.0	1	0900	0900	1	0300	0110	0110	00.6	00.0	00.0	0200	0120	0090	0920	0970
68009	1												0140	0050	0080	00.0	00.0	00.0	0200	0240	0100	0860	0960
68009	2												0260	0140	0200	03.1	01.4	00.4				0950	0970
68009	3												0370	0090	0130	01.0	00.2	00.0				0920	0970
68009	4												0410	0160	0400	01.4	00.7	01.9	0160	1000	0160	0870	0950
68010	0	0250	0125	0250	2	02.8	02.0	02.[illegible]	[illegible]	[illegible]	0700	2	0260	0120	0210	02.4	02.0	02.1	0120	0400	0120	0680	0690
68010	1												0230	0190	0170	02.0	02.2	01.0	0140	0430	0150	0770	0770
68010	2												0140	0070	0130	00.0	00.2	00.9				0690	0740
68011	0	0035	0040	0040	1	00.0	00.0	00.0	1	0800	0800	1	0050	0010	0010	00.0	00.0	00.0	0020	0180	0060	0690	0740
68011	1												0030	0020	0020	00.0	00.0	00.0	0060	0240	0060	0720	0770
68012	0	0065	0085	0090	1	00.0	00.1	00.0	1	0700	0700	1	0250	0030	0200	00.0	00.0	00.0	0050	0480	0050	0700	0770
68012	1												0210	0050	0160	00.0	00.0	00.0	0060	0380	0080	0760	0780
68012	2												0050	0020	0050	00.0	00.0	00.0				1000	1000
68012	3												0130	0030	0130	00.0	00.0	00.0	0055	0490	0050	0820	0820
68012	4												0140	0050	0160	00.0	00.0	00.0	0060	0600	0070	0830	0950
68013	0	0180	0100	0200	1	05.1	01.6	04.8	2	0950	0950	1	0210	0090	0160	04.4	01.0	04.5	0120	0300	0140	0980	0960
68013	1												0190	0150	0210	05.7	01.1	05.9	0180	0440	0180	0910	0920
68013	2												0130	0070	0130	04.6	00.6	04.5				0980	0980
68013	3												0060	0050	0080	00.4	00.2	00.4	0100	0320	0100	0900	0910
68013	4												0250	0190	0240	07.8	02.9	08.2	0130	0230	0150	0880	0880
68014	0	0085	0055	0095	1	00.0	00.0	00.0	1	0800	0900	1	0030	0010	0030	00.0	00.0	00.0	0080	0200	0080	0810	0820
68014	1												0090	0020	0050	00.0	00.0	00.0	0060	0100	0070	0870	0880
68014	2												0140	0020	0050	00.0	00.0	00.0				0760	0790
68015	0	0045	0055	0060	1	00.0	00.0	00.0	1	0850	0850	1	0100	0050	0050	00.1	00.0	00.0	0020	0170	0040	0770	0790
68015	1												0130	0060	0060	00.7	00.0	00.0	0090	0270	0100	0770	0800
68015	2												0190	0090	0060	02.5	00.0	00.0				0780	0800
68015	3												0530	0090	0060	07.1	00.2	00.0	0100	0170	0070	0560	0900
68015	4												0200	0060	0060	00.4	00.0	00.0	0100	0240	0080	0730	0800
68016	0	0095	0080	0140	1	00.1	00.1	00.1	1	1000	1000	1	0130	0050	0100	00.2	00.3	00.2	0100	0130	0080	0980	1070
68017	0	0035	0030	0030	1	00.3	00.1	00.1	1	1100	1100	1	0040	0020	0050	00.5	00.1	00.3	0080	0120	0080	1130	0960
68017	1												0050	0020	0040	00.2	00.1	00.2	0060	0100	0060	0970	1050
68017	2												0050	0020	0050	00.3	00.1	00.2				1010	1040
68017	3												0050	0020	0060	00.4	00.1	00.4	0040	0080	0040	0950	0920
68017	4												0050	0030	0060	00.5	00.1	00.3	0040	0100	0050	1110	0970
68018	0	0120	0060	0150	1	00.1	00.1	00.1	1	0950	0950	1	0120	0040	0090	00.2	00.1	00.2	0070	0130	0070	0830	0890
68018	1												0170	0060	0120	00.2	00.1	00.2	0120	0180	0120	0930	0840
68018	2												0150	0030	0170	00.1	00.1	00.1				0850	0910
68018	3												0060	0030	0210	00.2	00.1	00.4	0060	0090	0060	1590	0950
68018	4												0110	0040	0100	00.1	00.1	00.1	0060	0120	0060	0750	0840
68019	0	0035	0050	0045	1	09.0	08.5	09.0	1	1000	1800	1	0080	0040	0060	00.4	00.3	00.4	0080	0180	0070	1360	1150
68019	1												0050	0050	0050	00.5	00.1	00.3	0070	0190	0080	1320	1320
68019	2												0120	0060	0140	00.2	00.1	00.2				0880	0950
68019	3												0090	0050	0090	00.5	00.2	00.4	0060	0180	0050	0780	0860
68019	4												0090	0050	0090	00.1	00.1	00.2	0050	0140	0060	0830	0830
68020	0	0080	0030	0060	1	04.0	00.6	04.3	2	1000	1000	1	0110	0030	0080	04.0	00.6	04.5	0105	0310	0120	0920	0980
68020	1												0080	0020	0070	03.7	00.7	04.4	0060	0220	0090	0980	0990
68020	2												0110	0030	0080	03.7	00.9	04.0				1000	1030
68020	3												0080	0030	0050	02.6	00.8	02.9	0100	0180	0110	0990	1060
68020	4												0080	0030	0060	02.5	00.7	02.8	0100	0200	0100	1070	1070
68021	0	0135	0075	0115	1	00.2	00.4	00.1	1	0850	0850	1	0170	0050	0140	00.4	00.5	00.6	0110	0100	0120	0680	0700
68022	0	0116	0100	0080	1	00.0	00.0	00.0	1	1000	1000	1	0090	0130	0100	05.2	00.0	00.0	0180	0220	0210	0980	1040
68022	1												0130	0050	0080	00.0	00.0	00.0	0080	0170	0110	0880	1020
68022	2												0540	0120	0090	08.0	00.1	00.0				1060	1160
68022	3												0330	0070	0070	04.5	00.0	00.0	0120	0240	0220	1100	1210
68022	4												0080	0050	0070	00.0	00.0	00.0	0160	0180	0240	1220	1220
68023	0	0070	0055	0085	1	00.9	00.3	00.6	1	0900	1100	1	0120	0040	0090	00.9	00.4	00.6	0060	0110	0050	0770	0850
68023	1												0110	0030	0100	00.5	00.3	00.5	0020	0080	0020	0770	0800
68023	2												0060	0030	0070	00.5	00.2	00.4				0780	0780
68023	3												0370	0090	0450	00.1	00.2	00.1	0050	0110	0040	0740	0750
68023	4												0240	0130	0300	00.1	00.2	00.1	0060	0190	0050	0760	0790
68024	0	0190	0075	0265	1	00.5	00.5	00.3	1	0800	0800	1	0180	0050	0250	00.8	00.3	00.5	0060	0090	0050	0700	0810
68024	1												0210	0050	0300	00.6	00.3	00.5	0050	0090	0050	0720	0820
68024	2												0280	0050	0300	00.7	00.5	00.7				0750	0790
68024	3												0190	0080	0280	00.8	00.4	00.4	0040	0080	0040	0650	0770
68024	4												0100	0050	0190	00.7	00.5	00.5	0050	0090	0040	0750	0840
68025	0	0155	0180	0180	1	01.7	00.2	01.7	2	1000	1000	1	0180	0120	0190	01.4	00.2	01.9	0120	0130	0110	0890	0880
68025	1												0050	0130	0070	00.0	00.4	00.0	0040	0080	0020	0790	0760
68026	0	0206	0050	0245	1	02.9	00.0	02.0	2	1000	1000	2	0420	0050	0420	00.6	00.0	01.3	0110	0180	0110	0810	0840
68026	1												0330	0100	0310	01.2	00.1	00.8				0830	0850
68026	2												0360	0100	0320	04.4	00.9	03.7				0910	0900
68026	3												0310	0090	0300	02.4	00.0	01.6	0090	0220	0090	0870	0660
68026	4												0300	0610	0290	03.1	00.0	03.0	0110	0320	0110	0880	0900

APPENDIX B - IDLE TEST RESULTS

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		DEQ IDLE TEST											HTS IDLE TEST										
		HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	SEQ	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
68027	0	0260	0090	0265	1	00.8	00.2	00.9	1	0700	0700	1	0290	0060	0320	00.6	00.3	01.1	0100	0300	0110	0680	0690
68027	1												0320	0080	0370	00.2	00.3	00.8	0040	0150	0050	0770	0850
68027	2												0320	0050	0280	00.1	00.1	00.4				0750	0820
68027	3												0110	0050	0090	00.0	00.0	00.0	0060	0160	0040	0750	0770
68027	4												0200	0060	0170	00.0	00.1	00.2	0080	0350	0100	0640	0710
68028	0	0045	0030	0050	1	00.9	00.2	00.8	1	1150	1150	1	0070	0020	0030	01.0	00.3	00.8	0060	0110	0060	1040	1140
68028	1												0130	0040	0100	01.4	00.3	01.0	0050	0150	0040	0770	0820
68028	2												0120	0040	0090	01.2	00.6	00.9				0780	0860
68028	3												0050	0030	0120	00.5	00.2	01.2	0060	0130	0060	1210	0730
68028	4												0110	0040	0100	01.1	00.2	01.0	0050	0180	0060	0650	0710
68029	0	0070	0045	0060	1	00.0	00.0	00.0	1	0950	0950	1	0120	0050	0050	00.0	00.0	00.0	0080	0130	0120	0920	1030
68029	1												0120	0030	0060	00.0	00.0	00.0				1100	1100
68029	2												0240	0050	0200	00.0	00.0	00.0	0040	0100	0040	0800	0830
68029	3												0390	0120	0140	00.1	00.0	00.0	0070	0210	0060	0530	0590
68029	4												0540	0040	0380	00.0	00.0	00.0	0070	0130	0050	0730	0730
68030	0	0035	0025	0035	1	01.0	00.2	00.5	1	1300	1300	1	0050	0040	0050	00.6	00.2	00.5	0060	0110	0060	1030	1170
68030	1												0340	0100	0250	04.3	00.3	03.5	0080	0100	0070	0720	0780
68030	2												0080	0030	0080	01.7	00.3	01.5				0950	0940
68030	3												0070	0050	0070	01.4	00.3	01.1	0060	0080	0060	1000	1000
68030	4												0070	0050	0060	01.0	00.2	00.9	0060	0180	0060	1110	1140
68031	0	0270	0040	0335	2	06.0	00.0	06.3	2	0950	0950	1	0410	0080	0270	04.8	00.0	04.9	0080	0230	0110	0680	0900
68032	0	0050	0030	0060	1	01.3	00.2	01.1	2	1000	1000	1	0120	0060	0080	01.6	00.3	01.3	0060	0090	0060	0940	0960
68032	1												0050	0030	0040	01.0	00.2	00.6	0060	0090	0060	1050	1110
68032	2												0090	0040	0100	01.2	00.3	01.5				0980	0930
68032	3												0050	0050	0080	01.1	00.2	01.1	0060	0110	0060	0940	0970
68032	4												0090	0040	0080	01.9	00.3	01.7	0070	0080	0070	0910	0940
68033	0	0055	0050	0105	1	00.0	00.0	00.0	1	0900	0850	1	0120	0040	0100	00.0	00.0	00.0	0070	0180	0080	0780	0870
68033	1												0080	0050	0090	00.0	00.4	00.0	0080	0140	0070	0760	0840
68033	2												0060	0030	0050	00.0	00.0	00.0				0740	0800
68033	3												0250	0060	0200	00.4	00.0	01.3	0080	0250	0100	0710	0790
68033	4												0210	0030	0240	01.0	00.0	00.9	0110	0260	0120	0900	0960
68034	0	0435	0200	0475	2	07.4	01.6	06.5	2	1000	1000	1	0300	0120	0480	03.6	00.2	08.0	0110	0200	0100	1300	0920
68034	1												0560	0090	0550	07.6	00.0	08.0				0860	0870
68034	2												0510	0180	0540	07.8	00.5	07.7				0830	0870
68034	3												0590	0200	0510	07.3	00.5	07.7	0100	0305	0100	0940	0910
68034	4												0580	0150	0620	08.1	01.1	08.0	0130	0400	0130	0900	0900
68035	0	0180	0120	0215	1	05.8	01.4	05.8	2	0950	0950	1	0290	0170	0230	05.7	01.0	05.7	0090	0820	0100	0900	0980
68035	1												0140	0080	0130	00.4	00.2	00.6	0110	0400	0100	0980	0990
68036	0	0085	0080	0070	1	00.5	00.3	00.5	1	0900	0900	1	0170	0080	0060	00.3	00.3	00.4	0070	0170	0070	0750	0820
68036	1												0120	0080	0080	00.3	00.1	00.4				0750	0850
68036	2												0110	0050	0060	00.4	00.2	00.4				0820	0880
68036	3												0090	0050	0040	00.4	00.2	00.3	0060	0220	0080	0800	0900
68036	4												0190	0070	0100	00.5	00.1	00.6	0080	0240	0100	0680	0710
68037	0	0045	0025	0190	1	00.0	00.0	00.1	1	0700	0700	1	0120	0010	0090	00.0	00.0	00.0	0030	0310	0050	0780	0740
68037	1												0420	0030	0490	00.2	00.0	00.3				0750	0740
68037	2												0090	0030	0280	00.1	00.0	00.2				0720	0750
68038	0	0120	0115	0355	1	02.8	02.3	02.9	2	0900	0900	1	0120	0020	0120	02.4	00.2	01.6	0080	0270	0080	0770	0800
68038	1												0140	0060	0140	02.3	00.9	02.6	0090	0360	0100	0790	0810
68038	2												0190	0100	0170	03.3	01.3	02.9				0770	0810
68038	3												0120	0060	0130	01.2	00.5	01.4	0100	0440	0100	0790	0830
68038	4												0110	0080	0130	02.0	00.6	02.4	0110	0460	0120	0870	0880
68039	0	0025	0015	0040	1	00.1	00.2	00.6	1	1000	1000	1	0070	0030	0050	00.0	00.3	00.8				0920	0960
68039	1												0030	0010	0030	00.8	00.4	00.7	0040	0030	0040	0940	0990
68039	2												0080	0030	0070	00.6	00.3	00.7				0850	0980
68040	0	0025	0085	0045	1	00.0	01.2	00.0	1	1000	1000	1	0040	0030	0040	00.0	00.0	00.0				0950	0990
68040	1												0030	0090	0050	00.0	01.8	00.0				0760	0830
68040	2												0040	0030	0040	00.0	00.0	00.0	0080	0280	0080	0920	0940
68040	3												0130	0020	0900	00.0	00.0	00.0	0100	0240	0100	0910	0900
68041	0	0060	0045	0070	1	00.0	00.1	00.0	1	0600	0600	1	0080	0020	0060	00.0	00.0	00.0	0040	0140	0040	0610	0630
68041	1												0070	0030	0080	00.0	00.0	00.0				0700	0750
68041	2												0170	0090	0130	00.0	02.6	00.0				0700	0710
68042	0	0025	0020	0035	1	00.0	00.0	00.0	1	1100	1100	1	0040	0020	0030	00.0	00.0	00.0	0090	0120	0060	0920	1000
68043	0	0080	0070	0075	1	00.0	00.0	00.0	1	0800	0800	1	0130	0020	0080	00.0	00.0	00.0	0080	0100	0080	0900	0920
68044	0	0080	0070	0340	1	00.1	00.2	00.1	1	0950	0950	1	0130	0070	0130	00.2	00.2	00.2				0910	0910
68044	1												0170	0080	0140	00.2	00.3	00.2	0090	0160	0090	0900	0950
68045	0	0045	0045	0060	1	00.0	00.1	00.0	1	0650	0650	1	0190	0080	0160	00.3	00.8	00.0	0120	0450	0100	0770	0740
68045	1												0950	0190	0490	00.4	00.5	00.1	0160	0620	0110	0700	0760
68046	0	0025	0040	0035	1	00.0	00.0	00.0	1	0800	0800	1	0320	0100	0080	04.2	00.0	00.0	0110	0200	0060	0840	0840
68046	1												0360	0190	0160	01.6	00.0	00.0	0110	0190	0060	0730	0790
68047	0	0070	0055	0095	1	00.0	00.0	00.0	1	0800	0800	1	0120	0050	0080	00.0	00.0	00.0	0070	0190	0080	0810	0820
68047	1												0060	0020	0030	00.0	00.0	00.0	0060	0180	0070	0800	0830
68058	0	0030	0030	0050	1	00.0	00.0	00.0	1	0700	0700	1	0050	0030	0090	00.0	00.0	00.0				0640	0710
68058	1												0040	0020	0030	00.0	00.0	00.0	0060	0390	0080	0730	0730
68058	2												0030	0010	0020	00.0	00.0	00.0	0070	0260	0080	0730	0760
68082	0	0160	0135	0505	2	03.7	04.8	06.8	2	0800	0850	1	0140	0140	0060	00.0	03.5	00.0				0630	0740
68082	1												0140	0150	0160	00.9	04.0	01.0	0090	0300	0090	0710	0670
68082	2												0210	0160	0120	00.7	03.2	00.3	0080	0340	0080	0650	0680
68083	0	0380	0095	0435	2	08.0	00.9	08.0	2	0900	0900	1	0380	0090	0360	06.8	00.0	06.8				0810	0820
68083	1												0370	0080	0410	06.9	00.0	07.7	0110	0140	0130	0820	0790
68083	2												0560	0120	0440	09.0	00.1	07.9	0110	0340	0100	0800	0820

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APPENDIX B - IDLE TEST RESULTS

1975 - 77 EUGENE

	S	DEQ IDLE TEST											HTS IDLE TEST										
	E	HC				CO				RPM			HC			CO			NOX			RPM	
EPANO	Q	1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
68084	0	0090	0055	0105	1	02.9	00.5	03.2	2	0750	0750	1	0130	0050	0110	02.1	00.2	01.9				0750	0760
68084	1												0120	0020	0110	03.9	00.1	02.7	0130	0590	0140	0710	0720
68084	2												0120	0040	0100	01.6	00.2	01.5	0140	0800	0140	0740	0740
68085	0	0140	0075	0145	1	01.8	00.6	01.2	1	0800	0800	1	0120	0050	0140	00.9	00.4	01.2				0920	0930
68085	1												0100	0030	0090	01.0	00.2	00.5	0060	0080	0060	0900	0950
68085	2												0140	0060	0200	01.0	00.4	01.4	0060	0120	0070	0920	0950
68086	0	0055	0085	0060	1	00.0	00.0	00.0	1	0950	0950	1	0130	0100	0090	00.0	00.0	00.0				0970	0970
68086	1												0140	0100	0100	00.0	00.0	00.0	0130	0040	0120	0980	0970
68086	2												0800	0200	0210	09.2	00.0	00.0	0120	0180	0100	0820	0960
78001	0	0085	0065	0050	1	00.6	00.9	00.1	1	0800	0800	1	0020	0020	0020	00.0	00.0	00.0	0120	0400	0100	0740	0710
78001	1												0050	0020	0020	00.1	00.0	00.0	0120	0460	0100	0970	0810
78001	2												0040	0020	0030	00.0	00.0	00.0	0080	0240	0080	0770	0830
78001	3												0090	0070	0120	00.2	00.9	00.2				0640	0690
78001	4												0060	0040	0030	00.0	00.0	00.0	0040	0380	0060	0640	0640
78002	0	0040	0010	0030	1	00.0	00.0	00.0	1	0700	0700	1	0100	0030	0020	00.8	00.0	00.0	0060	0140	0080	0620	0640
78002	1												0120	0020	0020	00.0	00.0	00.0	0050	0140	0060	0600	0670
78002	2												0100	0030	0020	00.0	00.0	00.0	0030	0120	0040	0640	0690
78002	3												0240	0070	0170	00.1	00.3	00.0				0640	0700
78002	4												0420	0100	0160	00.1	00.0	00.0	0090	0150	0050	0990	0630
78003	0	0140	0060	0165	1	05.4	00.1	05.4	2	0900	0900	1	0190	0060	0190	03.6	00.0	04.2	0140	0120	0140	0900	0920
78003	1												0130	0030	0130	02.0	00.0	03.3	0180	0590	0180	0920	0990
78003	2												0180	0060	0190	04.9	00.3	05.1				1000	1000
78003	3												0250	0020	0070	00.0	00.0	00.0	0060	0230	0080	0650	0690
78003	4												0460	0080	0220	00.1	00.0	00.0	0060	0800	0080	0670	0700
78004	0	0235	0090	0260	2	05.1	00.1	05.3	2	1000	1000	2	0220	0140	0260	04.5	00.0	05.0	0150	0120	0130	0950	0950
78004	1												0220	0200	0250	03.8	00.3	04.5	0160	0180	0140	0910	0930
78004	2												0280	0120	0310	03.3	01.6	04.2				0810	0830
78004	3												0120	0280	0100	00.2	00.7	00.0				0790	0850
78004	4												0060	0080	0040	00.0	00.4	00.0	0060	0140	0080	0600	0620
78005	0	0085	0080	0120	1	00.1	00.2	00.1	1	0800	0800	1	0160	0060	0130	00.1	00.2	00.1	0100	0250	0100	0680	0760
78005	1												0150	0060	0150	00.1	00.3	00.1	0070	0190	0080	0680	0720
78006	0	0415	0105	0520	2	06.4	00.4	06.5	2	1150	1150	1	0170	0080	0520	02.2	00.1	06.8	0220	0440	0140	1740	1070
78006	1												0120	0020	0090	00.0	00.0	00.0	0060	0470	0090	0760	0810
78006	2												0100	0020	0080	00.0	00.0	00.0				0850	0800
78006	3												0140	0030	0130	00.0	00.0	00.0	0090	0280	0080	1120	0880
78006	4												0080	0030	0090	00.0	00.0	00.0	0060	0400	0080	0800	0800
78007	0	0090	0060	0095	1	00.7	00.1	00.7	1	1000	1000	1	0080	0040	0080	00.3	00.1	00.5	0120	0150	0120	0880	0800
78007	1												0080	0030	0080	00.7	00.1	00.9	0080	0150	0070	0940	0870
78007	2												0100	0030	0120	01.6	00.3	01.9				1000	1000
78007	3												0080	0030	0080	00.9	00.1	01.1	0080	0160	0090	0900	0870
78007	4												0050	0020	0050	00.6	00.1	00.7	0120	0160	0120	1060	1120
78008	0	0070	0065	0085	1	01.5	01.6	01.7	1	0900	0900	1	0080	0030	0080	02.3	01.0	02.4	0120	0190	0100	0820	0890
78008	1												0420	0160	0400	09.9	06.7	09.9	0110	0130	0110	0910	0890
78008	2												0300	0120	0230	07.4	03.7	07.6				0990	0940
78008	3												0160	0090	0140	04.8	02.2	04.9	0080	0140	0080	0900	0920
78008	4												0200	0100	0170	07.1	03.0	07.4	0110	0160	0100	1060	1070
78009	0	0680	0250	0770	2	06.9	00.8	06.9	2	0900	0900	1	0690	0240	0740	06.0	00.2	06.8	0100	0150	0100	0830	0880
78009	1												0900	0140	1070	06.0	00.2	07.5				0900	0920
78009	2												0500	0130	0650	04.7	00.1	05.2				0950	0950
78009	3												0740	0340	0860	05.9	00.5	06.8	0110	0270	0120	0880	0920
78009	4												0570	0100	0680	04.1	00.0	04.2	0120	0140	0120	0970	0920
78010	0	0080	0060	0045	1	00.0	00.0	00.0	1	0950	0950	1	0160	0060	0060	00.0	00.0	00.0	0100	0180	0210	0990	1030
78010	1												0080	0040	0050	00.0	00.0	00.0	0200	0170	0200	1040	1030
78010	2												0060	0130	0040	00.0	01.6	00.0				1100	1100
78010	3												0100	0040	0050	00.0	00.0	00.0	0140	0125	0140	1000	1000
78010	4												0420	0110	0100	00.4	00.0	00.0	0170	0210	0180	1040	1050
78011	0	0045	0065	0055	1	00.0	00.0	00.0	1	1000	1000	1	0200	0060	0030	00.4	00.0	00.0	0090	0160	0200	0840	0950
78011	1												0050	0040	0030	00.0	00.0	00.0	0090	0110	0110	0770	0840
78011	2												0500	0090	0050	04.9	00.0	00.0				0720	0810
78011	3												0040	0030	0030	00.0	00.0	00.0	0080	0110	0080	0710	0820
78011	4												0450	0070	0060	04.5	00.0	00.0	0100	0120	0100	0740	0840
78012	0	0135	0055	0105	1	00.4	00.2	00.3	1	0900	0900	1	0120	0030	0080	00.4	00.3	00.3	0120	0180	0080	0740	0850
78012	1												0080	0020	0090	00.3	00.2	00.3	0060	0120	0070	0870	0900
78012	2												0160	0040	0130	00.4	00.3	00.2				0740	0810
78012	3												0090	0030	0060	00.2	00.3	00.2	0060	0095	0050	0860	0910
78012	4												0030	0060	0100	00.0	00.3	00.3	0060	0110	0050	0830	0890
78013	0	0345	0895	0510	2	02.7	00.5	03.4	2	1050	1050	1	0440	0130	0440	02.2	00.0	02.5	0080	0150	0150	1000	0990
78013	1												0130	0200	0130	00.8	01.0	01.6	0100	0120	0070	0790	0790
78013	2												0090	0200	0130	00.3	00.4	01.2				0740	0760
78013	3												0150	0140	0130	02.3	01.0	01.6	0100	0090	0090	0830	0830
78013	4												0140	0110	0190	01.5	00.0	01.8	0120	0140	0100	0790	0830
78014	0	0030	0010	0080	1	00.5	00.2	00.5	1	0950	0950	1	0090	0020	0060	00.8	00.4	00.6	0070	0100	0080	0790	0860
78014	1												0050	0030	0050	00.5	00.2	00.5	0040	0090	0050	0800	0800
78014	2												0080	0030	0070	01.2	00.4	00.8				0770	0820
78014	3												0080	0030	0080	00.6	00.3	00.5	0060	0080	0050	0800	0860
78014	4												0050	0020	0040	00.6	00.2	00.5	0050	0100	0040	0790	0860
78015	0	0340	0360	0180	1	00.6	00.1	00.0	1	0800	0900	1	0170	0070	0080	00.0	00.0	00.0	0080	0110	0090	0780	0870
78015	1												0310	0080	0060	00.6	00.0	00.0	0060	0140	0220	0750	0900
78015	2												0060	0050	0040	00.0	00.0	00.0				0900	0920
78016	0	0035	0055	0060	1	00.0	00.0	00.0	1	1000	1000	1	0050	0050	0030	00.0	00.0	00.0	0100	0130	0100	0970	0960
78016	1												0280	0080	0180	02.4	00.2	00.1				0920	0980
78016	2												0170	0110	0160	00.2	00.2	00.2				0950	0970
78017	0	0020	0020	0035	1	00.0	00.0	00.0	1	0900	0900	1	0140	0050	0050	00.0	00.0	00.0	0100	0120	0100	0590	0620
78017	1												0060	0020	0030	00.0	00.0	00.0	0070	0270	0100	0620	0650
78017	2												0060	0030	0050	00.0	00.0	00.0				0580	0650
78017	3												0060	0040	0050	00.0	00.0	00.0	0050	0110	0060	0600	0630
78017	4												0100	0030	0070	00.0	00.0	00.0	0060	0130	0080	0600	0650

APPENDIX B - IDLE TEST RESULTS

1975 - 77 EUGENE

EPANO	SEQ	D E Q I D L E T E S T											H T S I D L E T E S T										
		HC				CO				RPM			HC			CO			NOX			RPM	
		1ST	2500	2ND	S	1ST	2500	2ND	S	1ST	2ND	S	1ST	2500	2ND	1ST	2500	2ND	1ST	2500	2ND	1ST	2ND
78018	0	0395	0070	0435	2	06.4	00.0	06.3	2	0900	0900	1	0450	0170	0490	05.0	00.5	05.2	0060	0160	0070	0770	0840
78018	1												0580	0090	0550	05.7	00.1	06.0	0050	0080	0060	0770	0810
78018	2												0540	0120	0620	06.6	00.0	06.9				0740	0780
78018	3												0580	0060	0470	05.5	00.1	05.3	0070	0100	0080	0700	0700
78018	4												0930	0100	0600	07.5	00.1	07.1	0030	0160	0120	0730	0800
78019	0	0095	0060	0095	1	00.0	00.0	00.0	1	0800	0800	1	0160	0030	0050	00.0	00.0	00.0	0060	0120	0070	0690	0730
78019	1												0100	0020	0050	00.0	00.0	00.0	0060	0160	0080	0710	0760
78019	2												0050	0020	0030	00.0	00.0	00.0				0680	0690
78019	3												0170	0030	0130	00.0	00.0	00.0	0060	0170	0070	0640	0660
78019	4												0450	0110	0390	06.2	00.6	05.9	0120	0180	0130	0800	0820
78020	0	0555	0160	0495	2	07.7	00.2	06.8	2	0900	0950	1	0500	0130	0520	06.0	00.1	06.4	0090	0150	0100	0820	0870
78021	0	0095	0060	0110	1	00.0	00.0	00.0	1	0800	0800	1	0110	0030	0090	00.0	00.0	00.0	0070	0120	0070	0690	0740
78021	1												0170	0080	0140	00.0	00.0	00.0	0060	0140	0070	0690	0700
78021	2												0550	0160	0430	00.2	00.0	01.5				0720	0790
78021	3												0140	0210	0140	00.0	00.0	00.0	0080	0200	0070	0700	0720
78021	4												0540	0080	0620	00.4	00.0	00.1	0120	0350	0120	0770	0740
78022	0	0030	0055	0040	1	00.0	00.0	00.0	1	0900	0900	1	0090	0030	0090	00.0	00.0	00.0	0100	0220	0110	0880	0860
78022	1												0210	0050	0140	00.0	00.1	00.0	0060	0160	0070	0900	0940
78022	2												0200	0050	0120	00.0	00.0	00.0				0760	0850
78023	0	0065	0115	0085	1	00.0	00.0	00.0	1	0900	0900	1	0170	0050	0130	00.0	00.0	00.0	0090	0150	0090	0820	0770
78023	1												0250	0050	0210	00.0	00.0	00.0	0080	0150	0060	0740	0610
78023	2												0850	0200	0540	00.8	00.2	00.3				0750	0750
78023	3												0140	0060	0090	00.0	00.0	00.0	0090	0170	0070	0750	0740
78023	4												0580	0160	0350	01.5	00.0	00.1	0100	0260	0070	0770	0780
78024	0	0105	0055	0100	1	00.0	00.0	00.0	1	0900	0900	1	0090	0060	0050	00.0	00.0	00.0	0090	0180	0100	0700	0690
78024	1												0520	0130	0460	01.5	00.6	01.9				0690	0720
78024	2												0490	0170	0420	00.7	00.0	01.9				0690	0740
78024	3												0100	0040	0060	00.0	00.0	00.0	0020	0140	0030	0700	0760
78024	4												0540	0140	0470	03.9	00.4	02.6	0100	0180	0100	0720	0740
78025	0	0090	0070	0075	1	00.0	00.0	00.0	1	0800	0800	1	0050	0010	0040	00.0	00.0	00.0	0070	0110	0070	0760	0770
78025	1												0050	0020	0030	00.0	00.0	00.0				0670	0750
78025	2												0050	0020	0030	00.0	00.0	00.0				0690	0720
78025	3												0120	0030	0060	00.0	00.0	00.0	0070	0130	0090	0700	0760
78025	4												0120	0040	0080	00.0	00.0	00.0	0070	0160	0080	0700	0710
78026	0	0465	0130	0495	2	03.4	00.1	03.4	2	0750	0750	1	0510	0050	0560	03.0	00.0	02.8	0080	0175	0065	0800	0820
78026	1												0900	0090	0690	05.5	00.0	05.0	0050	0150	0050	0800	0820
78026	2												0560	0050	0520	03.2	00.0	02.8				0820	0820
78026	3												0470	0070	0480	01.9	00.0	02.6	0060	0180	0070	0790	0850
78026	4												0550	0050	0510	02.9	00.0	02.9	0090	0230	0100	0750	0800
78027	0	0080	0120	0110	1	00.0	00.0	00.0	1	0750	0750	1	0160	0040	0130	00.0	00.0	00.0	0060	0120	0070	0650	0720
78027	1												0150	0080	0140	00.0	00.0	00.0				0660	0700
78027	2												0240	0200	0210	00.0	00.1	00.0				0720	0740
78027	3												0350	0130	0240	00.1	00.1	00.2	0070	0130	0080	0690	0750
78027	4												0580	0190	0290	00.3	00.3	00.2	0080	0175	0100	0750	0780
78028	0	0090	0070	0095	1	00.1	00.3	00.1	1	0900	0900	1	0110	0050	0090	00.1	00.4	00.3	0060	0070	0050	0850	0930
78028	1												0080	0030	0070	00.3	00.6	00.2	0040	0090	0040	0890	0890
78029	0	0380	0070	0470	1	06.5	00.0	06.5	2	0750	0750	1	0640	0130	0610	06.9	00.0	07.4				0750	0750
78029	1												0790	0100	0730	08.1	00.1	08.3	0090	0130	0090	0670	0690
78029	2												0550	0080	0560	07.2	00.0	07.7				0710	0730
78029	3												0460	0080	0490	06.0	00.1	06.4	0110	0140	0120	0740	0730
78029	4												0570	0080	0620	06.9	00.1	06.8	0120	0180	0130	0710	0730
78030	0	0205	0090	0105	1	00.0	00.0	00.0	1	0800	0800	1	0090	0030	0070	00.0	00.0	00.0	0090	0140	0080	0780	0760
78030	1												0060	0030	0030	00.0	00.0	00.0				0700	0740
78030	2												0060	0020	0060	00.0	00.0	00.0	0060	0115	0075	0700	0730
78030	3												0200	0090	0170	00.0	00.1	00.0	0080	0160	0100	0780	0800
78031	0	0300	0085	0270	2	03.6	00.0	03.4	2	0850	0850	1	0280	0180	0400	03.4	00.0	03.4	0120	0200	0120	0760	0770
78031	1												0770	0100	0800	06.6	00.1	05.6				0760	0780
78031	2												0420	0090	0370	02.5	00.1	02.9				0720	0770
78031	3												0440	0100	0440	03.1	00.1	00.3	0060	0130	0060	0660	0680
78031	4												0580	0120	0660	02.1	00.2	02.6	0100	0150	0100	0800	0820
78032	0	0065	0050	0120	1	00.1	00.0	00.1	1	1000	1000	1	0100	0030	0060	00.1	00.1	00.1	0050	0130	0070	0940	0980
78032	1												0090	0040	0070	00.2	00.1	00.2	0050	0140	0060	0870	0960
78033	0	0030	0020	0035	1	00.0	00.0	00.0	1	1000	1000	1	0060	0070	0050	00.0	00.0	00.0	0080	0180	0090	0890	0940
78033	1												0190	0040	0140	00.2	00.0	00.4	0080	0230	0100	0600	0640
78034	0	0095	0060	0100	1	01.7	00.2	01.6	1	0750	0750	1	0130	0030	0060	01.9	00.3	01.2	0060	0220	0060	0750	0850
78034	1												0270	0120	0200	03.0	00.7	02.1	0070	0100	0080	0600	0740
78035	0	0300	0200	0265	2	03.6	00.0	03.3	2	0900	0900	1	0150	0100	0080	00.0	00.0	00.0	0100	0140	0120	0910	0970
78035	1												0340	0120	0080	03.4	00.0	00.0	0120	0130	0110	0950	0960
78036	0	0110	0040	0130	1	01.0	00.1	01.2	1	1150	1175	2	0050	0020	0020	00.0	00.0	00.0	0080	0270	0150	1000	1000
78036	1												0250	0120	0150	01.7	00.8	00.7	0100	0160	0110	1060	1050

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

Legend

HI(LAB) - 52 MPH Test using Laboratory Analyzers

HI(GAR) - 52 MPH Test using Garage Analyzer

LO(LAB) - 25 MPH Test using Laboratory Analyzers

LO(GAR) - 25 MPH Test using Garage Analyzer

IDLE(LAB) - Idle Test Using Laboratory Analyzers

IDLE(GAR) - Idle Test using Garage Analyzer

HC - Hydrocarbon Emissions in ppm (Hexane for GAR Measurements and Total HC for LAB Measurements)

CO - Carbon Monoxide in Percent

NO_x - Oxides of Nitrogen in ppm

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND PASS

EPA NO	---HI (LAB)--- HC	CO	NOX	HI (GAR) HC	CO	---LO (LAB)--- HC	CO	NOX	LO (GAR) HC	CO	--IDLE (LAB)-- HC	CO	NOX	IDLE(GAR) HC	CO	LAB
23003	0755.3	00.2	2145.1	0085	00.3	1121.4	00.1	1363.0	0075	00.2	0506.2	00.6	0042.8	0060	00.6	DEQ
23003	1306.8	00.5	2292.1	0060	00.5	1410.4	00.5	1227.5	0123	00.6	0488.9	00.9	0055.5	0050	00.8	MTS
23004	1346.5	00.2	2060.4	0055	00.1	2192.8	00.1	0959.5	0160	00.1	2156.8	00.9	0092.7	0160	00.9	DEQ
23004	1395.3	00.2	1874.7	0080	00.2	1904.2	00.1	0855.2	0120	00.2	2301.7	01.1	0103.0	0120	01.1	MTS
23005	0158.1	00.3	0551.9	0015	00.4	0353.2	00.2	0449.3	0035	00.2	0626.3	00.8	0034.1	0060	00.8	DEQ
23005	0067.2	00.5	0509.7	0030	00.5	0487.3	00.3	0307.1	0050	00.5	1132.5	01.1	0036.9	0080	01.2	MTS
23007	0875.4	00.3	2483.8	0040	00.3	1196.5	00.2	1614.5	0070	00.4	0896.4	00.6	0130.0	0040	00.9	DEQ
23007	0609.0	00.1	2377.0	0040	00.1	1006.0	00.1	0323.4	0075	00.1	0661.0	00.1	0065.5	0050	00.1	MTS
23008	2306.7	00.3	2483.8	0125	00.3	2549.9	00.2	2483.8	0190	00.2	2784.0	01.8	0177.4	0230	01.8	DEQ
23008	2328.8	00.5	2504.5	0140	00.7	2422.2	00.4	2504.5	0150	00.3	4158.7	05.3	0140.5	0300	04.8	MTS
23009	2916.0	00.2	2483.8	0130	00.2	3192.4	00.2	1300.7	0150	00.2	3762.1	00.2	0072.7	0240	00.2	DEQ
23009	2566.7	00.2	2504.5	0160	00.2	3858.8	00.1	1416.9	0220	00.1	4428.6	00.2	0103.0	0370	00.1	MTS
23010	1067.4	00.5	2502.8	0070	00.6	1034.4	00.4	1647.4	0090	00.4	0548.3	00.1	0101.7	0055	00.1	DEQ
23010	1335.1	00.7	2504.5	0100	00.4	1582.0	00.4	2362.0	0140	00.2	1163.4	00.0	0387.9	0100	00.1	MTS
23011	1106.4	00.4	2502.8	0085	00.5	1121.4	00.1	1302.3	0090	00.1	0659.3	00.0	0074.2	0060	00.1	DEQ
23011	1069.6	01.0	2498.4	0110	01.1	2017.7	00.5	2300.8	0145	00.6	1216.5	00.1	0247.0	0100	00.2	MTS
23012	1981.7	00.6	2502.6	0120	00.6	1908.1	00.1	1855.0	0080	00.1	1641.6	01.3	0071.7	0050	00.5	DEQ
23012	2323.9	00.9	2504.5	0100	00.8	1588.6	00.2	0537.8	0080	00.3	2350.9	01.7	0073.0	0190	01.8	MTS
23013	2248.2	00.2	2502.8	0095	00.3	3312.3	00.6	1109.7	0180	00.6	3292.3	02.1	0144.2	0210	02.0	DEQ
23013	1762.7	00.1	2504.5	0090	00.2	3838.8	00.2	2214.6	0250	00.4	3868.8	01.1	0247.9	0240	01.2	MTS
23014	1160.5	00.2	1632.4	0050	00.2	2294.2	00.8	0687.0			2095.0	02.5	0079.2			DEQ
23014	0160.2	00.1	0612.4	0020	00.1	1276.5	01.3	0384.6	0065	01.3	2908.9	05.6	0074.4	0170	04.3	MTS
23015	1384.2	00.2	2502.8	0100	00.3	1396.5	00.1	1152.2	0120	00.1	0523.3	00.0	0046.7	0060	00.1	DEQ
23015	0604.2	00.2	1056.1	0110	00.5	0592.2	00.0	0572.4	0120	00.1	0208.1	00.0	0046.2	0040	00.1	MTS
23016	2867.1	02.6	2260.2	0170	02.5	2802.5	00.7	2502.8	0180	01.5	2892.5	03.1	0104.2	0180	02.5	DEQ
23016	2809.9	02.4	2325.8	0160	02.0	3153.5	01.1	2293.3	0230	01.5	3983.7	05.5	0081.9	0220	08.0	MTS
23017	1859.1	00.2	2502.8	0110	00.3	1227.9	00.1	1072.1	0090	00.1	2634.3	03.3	0124.2	0130	03.0	DEQ
23017	1987.7	00.4	2498.4	0110	00.3	1693.6	00.2	1277.7	0100	00.2	3375.7	04.5	0119.5	0040	04.1	MTS
23018	0069.8	00.1	0304.3	0015	00.1	0219.9	00.1	0226.7	0025	00.1	1028.8	00.1	0206.7	0070	00.1	DEQ
23018	1111.4	00.2	1301.7	0050	00.3	1492.6	00.1	0224.1	0120	00.2	1213.5	00.1	0164.0	0100	00.2	MTS
23019	1652.8	00.3	2115.2	0055	00.3	3142.4	00.8	0809.5	0190	00.9	4761.8	06.0	0074.2	0210	05.4	DEQ
23019	1630.6	00.5	1988.0	0200	00.7	2129.6	01.4	0677.9	0275	01.3	4958.3	06.1	0066.7	0400	06.3	MTS
23021	1050.2	00.1	2050.1	0075	00.2	1791.7	00.1	0889.6	0135	00.1	4791.7	02.1	0116.7	0400	02.0	DEQ
23021	1183.5	00.2	2367.0	0110	00.2	1744.6	00.1	0867.6	0150	00.2	4645.1	01.4	0134.9	0410	01.3	MTS
23022	2346.3	01.7	1389.8	0120	01.6	2315.6	01.1	0414.3	0130	01.0	3722.2	03.1	0074.2	0140	02.5	DEQ
23022	1039.5	00.8	1191.3	0060	00.7	0847.4	00.7	0302.9	0040	00.7	6114.5	04.5	0057.0	0220	04.4	MTS
23023	0448.7	00.1	1444.8	0030	00.2	0562.0	00.2	0777.0	0045	00.2	1521.1	01.9	0101.7	0100	01.9	DEQ
23023	2557.8	02.5	0667.6	0130	02.5	3235.7	04.8	0200.5	0130	04.2	2336.1	04.5	0059.4	0140	04.4	MTS
23024	1677.3	00.5	2502.8	0100	00.5	1796.8	00.1	1890.0	0130	00.1	2342.2	01.3	0124.2	0185	01.5	DEQ
23024	1660.6	00.5	2430.3	0110	00.6	1633.6	00.1	1427.4	0110	00.2	1936.7	00.6	0103.3	0160	00.6	MTS
23025	1940.8	01.1	2502.8	0110	01.2	2702.6	01.8	2010.1	0190	01.7	4381.9	04.7	0131.7	0290	04.4	DEQ
23025	1723.6	00.8	2430.3	0100	00.9	2215.7	01.2	1802.3	0150	01.2	3195.8	02.4	0161.7	0210	02.4	MTS
23026	2489.3	00.6	2502.8	0200	00.7	2835.5	00.3	1577.4	0210	00.5	3302.3	02.1	0079.2	0200	01.8	DEQ
23026	1597.6	00.4	2430.3	0100	00.5	1933.7	00.7	1337.4	0120	01.0	2092.7	01.2	0083.8	0130	01.5	MTS
23027	1839.7	00.1	2182.7	0100	00.2	2605.7	00.1	1632.4	0150	00.2	5171.6	03.1	0079.2	0320	03.1	DEQ
23027	1129.4	00.1	2358.2	0060	00.2	1777.7	00.1	1512.0	0090	00.3	2696.0	01.2	0061.6	0370	01.4	MTS
23028	2434.1	00.5	2502.8	0055	00.5	6361.1	00.7	2502.8	0320	00.9	3602.2	00.2	0096.7	0180	00.3	DEQ
23028	2242.7	00.6	2430.3	0100	00.6	4915.0	00.3	2430.3	0250	00.3	2076.0	00.2	0173.8	0150	00.2	MTS
23029	1487.4	00.9	1482.3	0075	01.0	2011.3	00.4	0822.0	0120	00.5	0577.3	00.7	0049.2	0055	00.8	DEQ
23029	1309.5	00.9	1730.0	0140	01.1	1174.5	00.4	0940.9	0175	00.5	0358.1	00.7	0061.6	0150	00.9	MTS
23030	1321.9	00.2	2502.8	0085	00.3	1245.3	00.1	1617.4	0090	00.1	1530.3	01.5	0194.2	0090	01.4	DEQ
23030	1307.5	00.3	2511.5	0200	00.5	0613.2	00.1	0444.9	0250	00.3	1141.4	00.9	0219.5	0250	01.5	MTS
23031	1564.0	00.6	2502.8	0050	00.7	1922.5	00.3	1860.0	0120	00.3	2709.9	02.6	0121.7	0180	02.8	DEQ
23031	1771.7	00.3	2511.5	0240	00.4	1876.7	00.1	1942.9	0250	00.2	2149.8	00.8	0166.9	0270	01.0	MTS
23032	0289.3	00.1	1067.1	0030	00.2	0758.1	00.2	0684.5	0055	00.3	3222.4	04.0	0106.7	0220	03.5	DEQ
23032	0280.3	00.1	1089.1	0035	00.1	0847.4	00.4	0539.8	0050	00.3	3415.7	03.8	0074.0	0245	03.4	MTS
23033	1279.0	00.3	2502.8	0080	00.4	1282.1	00.1	1462.3	0085	00.2	1649.8	01.0	0189.2	0100	00.9	DEQ
23033	1381.5	00.2	2430.3	0090	00.3	1171.5	00.1	1132.9	0090	00.1	1405.5	00.6	0212.8	0100	00.6	MTS
23034	1723.3	00.4	2502.8	0090	00.4	1226.9	-00.1	0859.5	0080	00.2	0862.3	00.4	0131.7	0055	00.4	DEQ
23034	1831.7	00.5	2511.5	0080	00.6	1111.4	00.1	0715.4	0075	00.3	0787.3	00.4	0134.3	0070	00.7	MTS
23035	1487.4	00.3	2262.7	0080	00.3	2045.0	00.1	1062.1	0130	00.1	3282.3	00.7	0221.7	0235	00.6	DEQ
23035	1651.6	00.6	2140.8	0190	00.7	1744.7	00.1	0913.3	0200	00.2	2929.3	00.9	0199.4	0350	01.2	MTS
23036	1113.5	00.1	2502.8	0070	00.2	1683.5	00.1	1439.8	0110	00.2	1671.2	00.7	0139.2	0135	00.8	DEQ
23036	1543.6	00.4	2511.5	0180	00.6	2029.8	00.5	1704.9	0245	00.6	2071.8	01.4	0146.8	0270	01.5	MTS
23037	1913.3	00.3	2502.8	0080	00.2	2029.7	00.3	0877.1	0115	00.1	3452.3	02.2	0081.7	0180	00.6	DEQ
23037	1921.7	00.3	2511.5	0175	00.4	1930.7	00.3	0823.2	0230	00.4	3998.8	03.2	0074.2	0325	03.2	MTS
23038	1288.2	00.4	2502.8	0065	00.5	1502.7	00.2	1885.0	0090	00.2	1787.6	01.8	0176.7	0100	01.3	DEQ
23038	1516.6	00.7	2511.5	0175	01.0	1402.5	00.2	1494.5	0200	00.3	1618.6	01.5	0176.9	0225	01.8	MTS
23039	2762.5	00.4	2502.8	0150	00.5	3022.4	00.3	1977.6	0170	00.3	2822.5	02.2	0126.7	0120	02.0	DEQ
23039	3019.2	00.7	2511.5	0260	01.0	3489.0	00.4	1323.1	0350	00.6	3379.2	01.8	0119.3	0320	02.3	MTS
23040	1934.7	00.1	2502.8	0110	00.2	1943.9	00.2	1745.0	0110	00.2	4721.8	02.7	0109.2	0265	02.5	DEQ
23040	2633.0	00.2	2511.5	0260	00.3	1987.8	00.2	1957.9	0250	00.4	4608.5	02.3	0134.3	0380	02.6	MTS
23041	1959.2	00.3	2502.8	0120	00.4	2216.6	00.1	1527.4	0160	00.2	2247.2	00.4	0139.2	0175	00.5	DEQ
23041	1966.8	00.3	2511.5	0275	00.5	1954.7	00.1	1482.0	0325	00.3	2113.8	00.6	0119.3	0350	00.9	MTS
23042	1217.7	00.2	1592.4	0070	00.3	0733.6	00.2	0559.4	0050	00.2	1870.4	01.1	0269.3	0140	01.3	DEQ
23042	1471.6	00.3	1504.5	0175	00.5	0829.3	00.3	0465.0	0150	00.4	2041.8	01.1	0264.5	0250	01.4	MTS
23043	1655.9	00.6	2325.3	0110	00.7	2529.1	00.8	1154.7	0200	00.9	2972.5	00.8	0164.2	0280	00.9	DEQ
23043	1603.6	01.3	1509.6	0180	01.5	2510.0	01.3	0813.1	0290	01.5	3309.1	01.4	0141.8	0370	01.6	MTS
23044	1662.0	00.4	2502.8	0090	00.4	2280.9	01.2	1837.5	0160	01.5	2602.7	03.2	0204.2	0180	03.7	DEQ
23044	1153.4	00.1	2511.5	0170	00.2	2194.8	01.4	1737.5	0260	02.0	3758.9	03.9	0154.3	0500	04.0	MTS
23045	2250.3	03.4	0611.9	0080	02.9	2581.2	04.8	0226.7	0035	04.0	2906.0	05.3	0096.7	0150	04.3	DEQ
23045	2008.6	01.8	0750.5	0140	02.4	1987.6	02.3	0550.1	0160	02.6	2642.0	04.0	0144.3	0240	04.6	MTS
23046	1579.3	00.1	2502.8	0050	00.2	1940.8	00.1	1597.4	0120	00.2	2982.5	02.4	0064.2	0180	02.2	DEQ
23046	1735.6	00.1	2430.3	0100	00.1	2706.0	00.2	1953.2	0190	00.1	4125.4	03.0	0181.1	0235	02.4	MTS
23047	1968.4	00.8	2502.8	0125	00.8	2216.6	00.1	1512.4	0170	00.2	3082.4	03.1	0081.7	0240	03.0	DEQ
23047	1960.7	00.5	2430.3	0110	00.5	2616.0	00.1	1333.8	0180	00.1	3144.9	01.8	0061.9	0440	01.7	MTS
23048	0742.8	00.2	2422.8	0050	00.2	1015.5	00.2	1194.7	0070	00.2	0896.0	01.4	0144.2	0070	01.3	DEQ
23048	0718.3	00.2	2251.0	0050	00.2	0967.4	00.2	1186.4	0070	00.2	0623.3	01.4	0131.8	0070	01.9	MTS
33003	2282.8	00.4	2483.8	0155	00.4	1982.7	00.4	1146.3	0180	00.6	2183.8	01.0	0187.3	0180	01.1	DEQ
33003	2148.2	00.4	2397.0	0150	00.4	1506.7	00.5	0570.3	0115	00.5	1874.1	01.1	0215.5	0160	01.1	MTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND PASS

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
33004	1406.5	00.1	1313.2	0100	00.2	2186.8	00.3	1562.2	0150	00.2	1286.5	00.2	0105.1	0080	00.3	DEQ
33004	0657.5	00.2	1380.1	0070	00.2	1651.3	00.2	1005.1	0130	00.2	0968.8	00.3	0118.0	0095	00.3	MTS
33005	2192.8	01.6	1181.1	0160	01.8	2084.8	02.0	0438.9	0140	02.0	2039.7	01.6	0075.2	0160	01.5	DEQ
33005	2109.0	01.7	0800.2	0130	01.6	1910.3	01.7	0238.0	0130	01.6	2094.0	01.5	0063.0	0150	01.5	MTS
33006	0455.2	00.1	0633.2	0040	00.2	0938.4	00.4	0177.4	0060	00.4	0641.3	00.8	0030.4	0050	00.8	DEQ
33006	0479.8	00.2	0695.3	0035	00.3	1043.0	01.4	0395.5	0070	01.3	1006.8	01.7	0058.0	0070	01.7	MTS
33007	0620.3	00.2	1326.3	0030	00.2	1160.5	01.2	0254.3	0170	01.3	1337.5	02.0	0059.2	0085	02.0	DEQ
33007	0428.6	00.1	1617.4	0015	00.0	0781.0	00.7	0233.0	0050	00.9	1214.6	02.0	0063.0	0040	02.4	MTS
33008	1571.6	00.2	2502.8	0060	00.2	2309.8	00.5	1367.3	0120	00.4	1562.6	00.4	0119.2	0070	00.3	DEQ
33008	1383.3	00.1	2307.1	0050	00.1	2130.1	00.2	1170.0	0140	00.2	1203.6	00.1	0123.0	0080	00.1	MTS
33009	0241.4	00.3	0677.1	0030	00.3	0731.6	00.9	0364.3	0060	00.6	1273.9	01.9	0056.7	0110	01.6	DEQ
33009	0433.2	00.1	0917.7	0030	00.1	0877.3	00.1	0485.3	0060	00.1	1579.6	00.8	0078.0	0220	00.8	MTS
33010	0602.9	00.2	0937.1	0040	00.2	1151.4	00.7	0195.7	0080	00.7	0835.8	00.9	0054.2	0080	00.9	DEQ
33010	0577.2	00.4	0722.7	0040	00.4	0922.4	01.9	0108.0	0050	01.9	0763.3	02.3	0055.3	0050	02.1	MTS
33011	0498.8	00.1	1349.8	0040	00.2	0578.4	00.1	0544.4	0040	00.2	1623.2	01.0	0076.7	0090	01.1	DEQ
33011	0103.2	00.1	1175.1	0045	00.1	0265.3	00.1	0449.7	0030	00.2	0514.3	00.2	0096.9	0040	00.2	MTS
33012	1822.3	00.3	1722.5	0125	00.4	1822.3	00.1	2502.8	0130	00.1	1506.8	00.2	0189.2	0120	00.2	DEQ
33012	1981.7	00.6	1607.9	0120	00.5	1984.7	00.1	2450.9	0140	00.2	1756.6	00.8	0184.5	0120	01.0	MTS
33013	0826.6	00.8	0937.1	0040	01.0	0719.3	00.2	0466.4	0040	00.2	0483.4	00.5	0111.7	0035	00.6	DEQ
33013	0673.4	00.7	1059.9	0030	01.2	1120.5	01.8	0275.6	0040	01.8	1042.5	02.5	0096.0	0040	02.6	MTS
33014	6731.0	00.2	1074.9	0600	00.2	6989.0	00.4	0634.4	0250	00.4	1277.0	01.5	0059.2	0340	01.4	DEQ
33014	0256.1	00.0	0374.5	0060	00.1	0418.2	00.2	0373.8	0030	00.3	1348.5	00.4	0033.7	0190	00.4	MTS
33015	3052.4	04.2	1304.8	0230	04.0	3992.1	05.7	0154.2	0280	05.0	4222.0	03.3	0044.2	0300	03.0	DEQ
33015	3685.5	05.3	0901.7	0230	04.8	4665.1	06.4	0185.0	0360	06.0	5284.9	04.5	0040.0	0290	04.2	MTS
33016	2070.5	01.7	2502.8	0120	01.7	2042.9	00.4	2502.8	0150	00.5	2300.3	01.5	0204.2	0180	02.1	DEQ
33016	1972.7	01.3	2430.3	0120	01.3	2044.7	00.4	2430.3	0140	00.4	2128.7	00.7	0268.8	0150	01.5	MTS
33017	2625.1	01.9	2422.8	0160	01.8	3232.4	03.4	0694.5	0240	03.1	2042.8	00.1	0074.2	0150	00.1	DEQ
33017	3065.8	02.7	2133.4	0190	02.4	3735.5	04.4	0354.0	0210	04.2	2203.7	00.1	0086.2	0120	00.1	MTS
33018	2285.0	03.2	1099.7	0110	03.1	1932.6	04.2	0214.2	0100	04.0	1516.0	02.3	0114.2	0090	02.1	DEQ
33018	2170.8	03.5	0815.5	0090	03.8	1960.8	05.1	0159.0	0090	05.4	1852.7	04.3	0088.8	0100	04.2	MTS
33019	1776.4	00.3	2107.6	0050	00.4	2404.5	00.3	1082.2	0170	00.4	3402.3	02.4	0159.2	0265	02.3	DEQ
33019	1351.5	00.6	1181.6	0060	00.4	0844.4	00.2	0327.2	0040	00.3	1867.6	01.6	0064.3	0130	01.6	MTS
33020	0606.0	00.7	1427.3	0035	00.7	0630.5	01.0	0581.9	0045	01.0	1368.9	02.8	0044.2	0070	02.4	DEQ
33020	0967.4	00.6	1434.5	0130	00.6	0664.3	00.9	0457.2	0110	01.0	5078.3	04.8	0038.7	0250	01.3	MTS
33021	0946.1	00.1	1684.9	0050	00.2	2664.9	01.3	0834.5	0160	01.2	3062.4	03.0	0064.2	0175	02.4	DEQ
33021	2047.8	01.8	1624.9	0160	01.8	3159.1	05.2	0239.2	0330	05.0	3139.2	04.4	0061.2	0290	04.4	MTS
33022	1715.1	00.1	2502.8	0080	00.2	3042.4	00.4	2502.8	0170	00.4	2112.8	00.1	0239.2	0140	00.1	DEQ
33022	1552.6	00.3	2430.3	0090	00.4	4035.4	01.2	2033.6	0240	01.4	2226.2	00.1	0546.3	0160	00.1	MTS
33023	0307.7	00.1	1672.5	0030	00.1	0638.6	00.3	1184.7	0055	00.4	0703.0	00.0	0114.2	0075	00.1	DEQ
33023	0292.1	00.1	1902.8	0050	00.2	0655.3	00.8	0800.6	0070	01.0	0607.2	00.1	0144.3	0075	00.3	MTS
33024	2437.2	01.3	2502.8	0130	01.4	2406.6	00.4	2502.8	0170	00.5	3112.4	02.9	0149.2	0210	03.7	DEQ
33024	2212.8	01.2	2511.5	0250	01.6	2392.9	00.5	2511.5	0325	00.7	2440.9	01.7	0274.6	0350	02.0	MTS
33025	0779.6	00.3	1134.7	0060	00.4	1092.1	00.1	0391.8	0085	00.1	1162.6	01.3	0059.2	0100	01.3	DEQ
33025	0736.3	00.2	1103.8	0060	00.4	1045.4	00.1	0374.8	0080	00.2	1141.4	01.2	0081.7	0080	01.6	MTS
33026	2146.1	00.7	2060.1	0115	00.7	3562.2	00.5	1074.7	0230	00.5	4321.9	04.4	0076.7	0220	04.1	DEQ
33026	1711.7	00.7	2100.7	0230	00.3	3329.1	00.4	0905.8	0350	00.5	3868.8	03.6	0069.2	0370	03.8	MTS
33027	1413.8	00.2	2262.7	0080	00.2	0880.7	00.1	0656.9	0050	00.2	3912.1	03.0	0094.2	0240	02.8	DEQ
33027	1688.7	00.2	2430.3	0120	00.2	1414.5	00.2	0619.3	0130	00.2	4845.0	02.5	0100.8	0410	03.0	MTS
33028	2749.7	01.1	2502.8	0160	01.2	3772.1	02.2	1279.7	0280	02.7	5071.6	06.8	0071.7	0260	07.4	DEQ
33028	2662.8	01.2	2430.3	0220	01.0	3565.6	01.6	1561.3	0240	01.3	3575.6	05.3	0074.0	0200	05.0	MTS
33029	0865.4	00.2	2275.2	0050	00.2	1974.5	02.7	0601.9	0140	02.5	1478.2	03.7	0074.2	0100	03.4	DEQ
33029	1102.5	00.5	1933.8	0080	00.4	2089.7	03.3	0334.5	0150	03.3	1657.6	04.0	0052.1	0110	04.2	MTS
33030	1095.2	00.2	2502.8	0060	00.2	1291.3	00.1	1364.8	0090	00.1	0908.3	00.1	0156.7	0075	00.1	DEQ
33030	0694.3	00.1	1011.0	0130	00.2	0247.1	00.0	0175.9	0150	00.1	0259.1	00.1	0061.6	0160	00.2	MTS
33031	1658.9	00.3	2502.8	0075	00.2	2133.9	00.2	1037.1	0150	00.2	2155.3	00.9	0104.2	0155	00.9	DEQ
33031	1774.6	00.4	2386.9	0090	00.4	1960.7	00.2	0636.3	0110	00.3	2122.7	00.8	0093.5	0140	00.6	MTS
33032	1374.0	00.2	2502.8	0080	00.2	1830.7	00.1	2502.8	0140	00.2	1386.2	00.8	0121.7	0120	00.8	DEQ
33032	1369.5	00.2	2430.3	0090	00.3	1714.6	00.1	2430.3	0130	00.2	1336.5	00.6	0132.5	0110	00.7	MTS
33033	0620.2	00.3	1765.0	0040	00.1	1199.3	00.6	1104.7	0070	00.3	1082.9	00.1	0206.7	0050	00.1	DEQ
33033	0745.3	00.3	1401.9	0130	00.4	1102.4	00.7	0828.2	0200	00.8	9996.0	00.2	0189.4	1500	00.3	MTS
33034	1856.1	00.2	2502.8	0110	00.3	3132.4	00.8	1257.2	0240	01.0	1857.9	01.1	0114.2	0150	01.3	DEQ
33034	1834.6	00.2	2430.3	0120	00.4	3245.7	00.7	1051.5	0240	00.9	1706.4	00.2	0100.8	0110	00.3	MTS
33036	0427.2	00.1	1817.5	0040	00.1	1101.3	00.9	1047.1	0080	00.8	1107.4	01.0	0104.2	0100	01.0	DEQ
33036	0412.2	00.1	1800.1	0170	00.3	1027.4	01.0	1003.5	0200	01.4	1078.4	01.6	0091.7	0210	02.1	MTS
33037	0871.5	00.2	1149.7	0070	00.2	1551.7	00.4	0611.9	0100	00.4	1230.0	01.7	0081.7	0080	01.7	DEQ
33037	1690.5	00.1	1300.9	0025	00.2	1354.5	00.1	0448.9	0030	00.2	1129.5	01.0	0096.0	0090	01.0	MTS
33038	1165.6	00.2	2152.7	0060	00.3	1744.7	00.2	2075.1	0100	00.1	2608.8	02.0	0111.7	0170	01.8	DEQ
33038	0571.2	00.1	1499.5	0180	00.2	0658.3	00.1	0560.1	0220	00.2	3339.1	00.2	0056.6	0310	00.3	MTS
33039	0911.3	00.3	2502.8	0060	00.5	1355.6	00.1	0324.3	0110	00.1	1309.6	00.0	0099.2	0120	00.1	DEQ
33039	0967.4	00.6	0816.2	0110	00.5	1402.5	00.1	0171.0	0110	00.2	1747.6	00.1	0054.6	0110	00.2	MTS
33040	0721.4	00.3	1154.7	0050	00.4	0577.3	00.1	0556.9	0050	00.2	1135.0	00.1	0184.2	0090	00.2	DEQ
33040	1168.5	00.6	1607.7	0180	01.0	0811.3	00.2	0652.8	0170	00.3	1279.5	00.5	0229.5	0230	00.8	MTS
33041	1337.2	00.4	2502.8	0075	00.4	1508.8	00.1	1780.0	0100	00.1	2685.4	04.1	0106.7	0200	03.8	DEQ
33041	1249.5	00.3	2511.5	0160	00.5	1420.5	00.1	1589.7	0190	00.2	2161.8	01.2	0229.5	0240	01.5	MTS
33042	0629.4	00.3	1742.5	0055	00.4	1325.0	01.9	0444.3	0110	02.0	1101.3	02.9	0074.2	0095	02.9	DEQ
33042	0907.4	00.4	1582.3	0060	00.4	1432.5	01.6	0456.2	0100	01.6	1219.5	03.1	0079.8	0080	02.9	MTS
33043	0313.8	00.1	0394.3	0025	00.2	0396.6	00.1	0159.2	0040	00.1	0586.5	00.1	0161.7	0050	00.1	DEQ
33043	1129.4	00.3	0774.0	0100	00.1	1231.5	00.1	0255.9	0130	00.1	0514.2	00.1	0129.4	0070	00.1	MTS
43002	3052.4	00.3	0364.2	0350	00.2	2512.6	00.7	0137.5	0250	00.8	6211.2	03.2	0037.9	0600	03.2	DEQ
43002	1268.8	00.0		0050	00.2	1669.3	00.1		0080	00.5	1551.9	00.1		0200	01.3	MTS
43003	1202.5	00.1	2461.4	0080	00.1	1226.5	00.2	1051.6	0110	00.3	0746.3	00.3	0070.2	0060	00.3	DEQ
43003	1356.2	00.1	2504.5	0098	00.1	1714.5	00.5	1255.0	0140	00.5	1407.4	00.6	0185.5	0110	00.6	MTS
43004	1819.3	00.0	2503.5	0110	00.3	1451.6	00.1	1433.1	0090	00.1	0863.4	00.2	0102.6	0050	00.1	DEQ
43004	2166.2	00.3	2504.5	0120	00.3	1503.7	00.1	1170.0	0120	00.2	1462.6	00.4	0165.5	0090	00.4	MTS
43005	1212.6	00.4	1599.9	0040	00.1	1880.5	00.8	0619.4	0110	00.5	2092.0	00.8	0064.2	0110	00.6	DEQ
43005	1348.5	00.1	1090.1	0020	00.1	1117.4	00.1	0490.3	0020	00.1	4608.5	00.1	0140.5	0160	00.1	MTS
43006	0532.5	00.1	0401.8	0010	00.0	0750.0	00.1	0366.8	0010	00.1	1390.3	01.2	0061.7	0040	00.5	DEQ
43006	0532.3	00.1	0524.7	0030	00.1	1012.4	00.1	0514.7	0055	00.0	1984.7	01.4	0102.0	0120	01.4	MTS
43007	1715.1	00.8	2502.8	0100	00.8	2600.6	01.0	2450.3	0170	01.1	2992.7	02.6	0151.7	0190	02.5	DEQ
43007	2221.7	01.3	2058.1	0130	01.5	3035.8	01.6	1752.9	0170	01.7	3455.6	02.9	0129.5	0180	02.8	MTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND PASS

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
43008	0627.4	00.2	2317.8	0045	00.3	0887.9	01.0	3631.9	0065	01.0	0750.0	01.1	0044.2	0070	01.1	DEQ
43008	0649.4	00.4	1923.0	0080	00.5	0874.4	01.1	0439.7	0130	01.2	1717.6	02.1	0066.9	0170	02.3	MTS
43009	1022.7	00.2	1442.3	0050	00.3	1338.2	00.3	0436.8	0080	00.3	0884.8	00.7	0040.7	0060	00.7	DEQ
43009	2895.9	01.0	1823.0	0110	01.1	3175.8	00.8	0352.3	0140	00.8	3035.8	01.5	0074.4	0120	01.6	MTS
43010	1500.6	00.3	2502.8	0090	00.3	1537.4	00.1	2335.2	0110	00.4	0808.2	00.2	0126.7	0050	00.2	DEQ
43010	1657.6	00.3	2339.5	0140	00.2	1837.7	00.3	2311.6	0150	00.1	0772.3	00.3	0164.0	0075	00.3	MTS
43011	0900.1	00.3	0434.4	0050	00.3	0523.3	00.1	0186.7	0040	00.2	1363.4	02.3	0051.7	0120	02.3	DEQ
43011	1111.4	00.6	0356.9	0060	00.7	0514.4	00.2	0135.5	0030	00.3	1549.6	02.5	0058.7	0100	02.8	MTS
43012	1871.4	00.4	2457.8	0110	00.5	3812.1	01.3	1002.1	0265	01.4	3142.4	02.5	0074.2	0200	00.7	DEQ
43012	2194.7	00.6	2200.7	0110	00.8	3625.6	01.5	0932.4	0220	01.5	4135.3	03.0	0122.0	0280	03.0	MTS
43013	1987.8	00.1	2502.8	0130	00.2	3142.4	00.2	2392.8	0230	00.2	3502.2	02.1	0121.7	0320	02.3	DEQ
43013	1855.6	00.1	2498.4	0110	00.1	3185.8	00.3	2333.3	0240	00.3	4385.2	04.3	0084.4	0370	04.2	MTS
43014	0560.0	00.8	0459.8	0040	00.9	0995.1	01.3	0239.2	0080	01.3	0845.0	01.7	0049.2	0060	01.6	DEQ
43014	9992.8	00.7	1707.9	1500	00.5	5654.7	01.2	0334.6	0430	01.2	9992.8	01.8	0132.0	1500	01.8	MTS
43015	1427.1	00.1	1609.9	0080	00.2	2092.0	00.3	1482.3	0140	00.4	1598.7	00.4	0126.7	0110	00.5	DEQ
43015	0868.3	00.1	0925.8	0080	00.2	1528.6	00.3	0795.5	0140	00.3	0877.3	00.3	0133.9	0100	00.5	MTS
43016	3052.4	00.8	2502.8	0270	00.9	4461.9	00.5	2255.2	0260	00.6	7100.8	05.8	0074.2	0340	05.0	DEQ
43016	0712.3	00.1	0635.1	0040	00.2	0868.3	00.1	0632.6	0055	00.1	1465.6	01.5	0028.7	0070	01.4	MTS
43017	0817.4	00.6	0621.9	0060	00.8	1500.6	01.9	0216.7	0130	01.9	1087.0	01.0	0084.2	0080	00.6	DEQ
43017	1261.5	01.3	0324.8	0080	01.5	1810.7	02.0	0377.0	0125	02.2	1213.5	00.6	0123.9	0110	00.7	MTS
43018	1344.4	00.1	2502.8	0070	00.2	1650.8	00.1	2502.8	0130	00.1	3292.3	03.0	0101.7	0220	02.7	DEQ
43018	1618.6	00.2	2430.3	0110	00.3	1624.6	00.1	1517.3	0140	00.1	3505.6	03.0	0086.2	0300	03.4	MTS
43019	1558.8	00.1	1695.0	0100	00.1	1589.5	00.1	2152.7	0130	00.1	2370.8	01.3	0254.3	0150	01.2	DEQ
43019	2053.7	00.4	1395.8	0130	00.5	2182.7	00.1	2430.3	0160	00.2	3205.7	03.8	0256.6	0220	03.4	MTS
43020	2790.5	00.8	2502.8	0185	00.6	3042.4	00.2	1232.2	0200	00.2	5291.5	04.7	0074.2	0300	04.2	DEQ
43020	2182.8	00.5	2228.9	0340	00.8	2759.3	00.3	0943.3	0410	00.5	6247.7	05.6	0091.3	0600	06.0	MTS
43021	2177.7	00.1	2532.8	0125	00.1	3392.3	00.1	2482.8	0230	00.2	3492.3	00.3	0169.2	0260	00.3	DEQ
43021	2077.7	00.1	2430.3	0130	00.2	3415.7	00.2	2238.0	0240	00.4	3525.6	00.8	0169.0	0290	01.0	MTS
43022	0584.3	00.4	0856.0	0040	00.5	0633.6	01.1	0381.8	0050	01.1	0550.8	01.0	0049.2	0050	01.0	DEQ
43022	0643.4	00.3	0687.3	0050	00.6	0637.4	01.1	0246.9	0060	01.2	0826.4	01.5	0035.1	0070	01.6	MTS
43023	0660.2	00.2	0732.0	0075	00.3	1370.9	01.2	0181.7	0110	01.0	1511.9	02.2	0061.7	0140	02.2	DEQ
43023	9996.0	00.3	0643.3	1780	00.5	9996.0	00.7	0134.6	2000	01.1	9996.0	02.9	0054.1	2000	03.6	MTS
43024	0706.0	00.3	0717.0	0040	00.5	1496.6	01.2	0194.2	0090	01.4	1410.8	00.3	0104.2	0100	00.5	DEQ
43024	0679.3	00.3	0728.0	0130	00.4	1348.5	01.1	0174.4	0230	01.3	1335.5	00.3	0114.3	0250	00.5	MTS
43025	1796.8	00.3	1297.3	0100	00.6	2455.6	01.9	0569.4	0170	01.9	2369.8	01.3	0209.2	0170	01.3	DEQ
43025	1438.0	00.6	1291.6	0160	00.6	2314.9	02.0	0515.0	0280	02.5	2363.9	01.4	0184.4	0300	01.5	MTS
43026	0871.5	00.1	0817.0	0050	00.2	1079.8	00.6	0351.8	0075	00.7	1450.6	02.0	0099.2	0120	02.1	DEQ
43026	0421.2	00.1	0768.0	0040	00.2	0724.3	00.5	0354.7	0045	00.7	1111.4	01.4	0141.8	0060	01.7	MTS
43027	0690.8	00.1	0276.8	0040	00.2	0932.8	00.5	0174.2	0065	00.6	0932.8	00.6	0101.7	0075	00.8	DEQ
43027	0376.0	00.1	0201.9	0030	00.2	0454.2	00.6	0125.8	0040	00.7	0619.2	00.6	0069.2	0045	00.9	MTS
43029	1803.0	01.0	2502.8	0170	00.7	2268.7	00.2	2502.8	0185	00.3	2201.3	01.6	0219.2	0175	00.7	DEQ
43029	1684.6	00.5	2428.2	0130	00.4	2659.4	00.1	2428.2	0200	00.1	1939.7	00.1	0192.7	0170	00.1	MTS
43030	0355.7	00.1	0738.2	0030	00.2	0692.2	00.4	0157.6	0060	00.9	1141.8	02.1	0062.5	0060	02.0	MTS
43031	0346.7	00.5	0129.4	0000	00.5	0251.7	01.2	0084.0	0020	01.2	0423.0	01.6	0074.5	0020	01.4	MTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND PASS

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
54004	0056.3	00.2	1014.3	0050	00.2	0920.4	00.1	0406.5	0040	00.1	1016.4	00.0	0125.0	0040	00.1	DEQ
54004	0513.0	00.1	0880.2	0040	00.2	0263.0	00.1	0283.4	0025	00.1	0717.7	00.1	0105.5	0065	00.1	HTS
54005	0344.1	00.0	1108.9	0030	00.2	0035.1	00.0	0441.4	0025	00.2	0029.1	00.0	0140.0	0025	00.1	DEQ
54005	0434.7	00.4	1337.4	0050	00.8	0832.2	01.0	0485.3	0070	00.2	0645.5	00.6	0287.9	0030	00.1	HTS
54006	0410.2	00.0	2483.8	0040	00.0	0485.2	00.0	1751.5	0050	00.0	0296.2	00.0	0110.1	0030	00.0	DEQ
54006	0410.6	00.0	2534.5	0050	00.0	0413.5	00.0	1534.9	0050	00.0	0293.1	00.0	0150.5	0040	00.0	HTS
54007	0410.2	00.0	0670.5	0030	00.0	0380.2	00.0	0224.7	0030	00.0	0266.2	00.0	0142.5	0030	00.0	DEQ
54007	0434.7	00.0	0725.2	0040	00.1	0320.2	00.0	0233.3	0040	00.1	0278.1	00.0	0123.0	0040	00.1	HTS
54008	0224.2	00.0	0909.7	0030	00.1	0257.2	00.0	1026.7	0040	00.1	0179.1	00.0	0102.6	0035	00.1	DEQ
54008	0236.9	00.0	0645.2	0020	00.1	0172.7	00.0	0822.7	0030	00.1	0145.6	00.0	0070.5	0040	00.1	HTS
54009	0050.1	00.0	1465.1	0010	00.0	0101.1	00.0	1313.2	0020	00.0	0179.1	00.0	0090.2	0040	00.0	DEQ
54009	0028.1	00.0	1365.1	0020	00.0	0052.2	00.0	0785.2	0020	00.0	0043.2	00.0	0148.0	0015	00.0	HTS
54010	0242.2	00.1	1774.0	0025	00.1	0242.2	00.0	0812.5	0030	00.0	0230.2	00.0	0085.2	0020	00.0	DEQ
54010	0284.1	00.0	1689.6	0010	00.0	0245.0	00.0	0577.8	0020	00.0	0248.0	00.0	0100.5	0015	00.0	HTS
54011	0221.2	00.0	0473.8	0010	00.1	0212.2	00.0	0286.9	0015	00.1	0179.1	00.0	0105.1	0010	00.1	DEQ
54011	0100.4	00.0	0420.4	0110	00.2	0148.6	00.0	0290.4	0090	00.2	0166.6	00.0	0093.0	0060	00.1	HTS
54012	0158.7	00.0	2262.7	0030	00.0	0121.9	00.0	1945.1	0030	00.0	0348.6	00.4	0134.2	0080	00.2	DEQ
54012	0190.3	00.0	2253.2	0030	00.0	0139.2	00.0	1830.5	0030	00.0	0130.2	00.0	0217.0	0025	00.0	HTS
54013	0452.8	00.0	1002.1	0025	00.0	0468.1	00.0	1532.4	0020	00.0	0167.9	00.0	0074.2	0010	00.0	DEQ
54013	0358.1	00.0	0925.2	0030	00.0	0364.1	00.0	1295.0	0050	00.0	0115.1	00.0	0058.0	0030	00.0	HTS
54014	0244.5	00.0	1742.5	0020	00.0	0256.7	00.0	1907.6	0025	00.0	0112.7	00.0	0114.2	0010	00.0	DEQ
54014	0244.3	00.0	1702.9	0040	00.0	0271.3	00.0	1785.5	0050	00.0	0214.3	00.0	0084.4	0040	00.0	HTS
54015	0507.9	00.1	2502.8	0050	00.1	0636.6	00.1	2250.2	0070	00.1	1375.0	01.5	0076.7	0100	01.5	DEQ
54015	0676.4	00.2	2496.4	0045	00.3	0826.4	00.2	1925.5	0070	00.3	1924.7	01.9	0066.9	0110	02.0	HTS
54016	0275.1	00.1	1304.9	0030	00.1	0183.2	00.0	0416.8	0020	00.1	0455.9	00.3	0076.7	0040	00.7	DEQ
54016	0271.0	00.2	1202.6	0030	00.2	0175.3	00.1	0324.6	0020	00.1	0532.3	00.6	0079.4	0040	00.6	HTS
54017	1543.5	00.2	2502.8	0110	00.3	2566.9	01.6	0757.0	0220	01.5	1200.4	00.4	0056.7	0100	00.4	DEQ
54017	1225.5	00.3	2200.8	0090	00.3	1450.5	01.1	0564.7	0120	01.2	1072.5	00.3	0059.4	0110	00.4	HTS
54018	0728.5	00.4	0290.8	0030	00.2	0311.9	00.0	2502.8	0030	00.0	1099.3	00.9	0086.7	0070	00.8	DEQ
54018	0217.3	00.2	0342.1	0030	00.2	0112.2	00.0	2178.2	0035	00.0	0121.2	00.1	0089.4	0020	00.1	HTS
54019	1430.2	00.2	2502.8	0130	00.2	1656.9	00.1	2317.8	0150	00.1	0848.0	01.0	0099.2	0070	00.9	DEQ
54019	1141.4	00.1	2509.5	0040	00.1	1111.4	00.1	1492.1	0040	00.0	0592.2	00.1	0048.7	0030	00.0	HTS
54020	1203.4	00.3	2502.8	0050	00.3	1506.8	00.1	2207.7	0130	00.1	0710.2	00.2	0106.7	0070	00.2	DEQ
54020	1318.5	00.3	2498.4	0100	00.3	1120.5	00.1	1210.1	0090	00.1	0692.4	00.1	0089.4	0080	00.1	HTS
54021	0275.1	00.1	0339.3	0025	00.1	0707.1	00.1	0869.6	0050	00.2	0835.8	00.1	0226.7	0070	00.1	DEQ
54021	0289.1	00.0	0407.1	0030	00.2	1162.4	00.3	1145.3	0080	00.4	1507.6	00.2	0454.7	0130	00.3	HTS
54022	0305.1	00.1	1354.8	0060	00.1	1280.0	00.3	1124.7	0100	00.3	1126.8	00.1	0536.9	0100	00.1	DEQ
54022	0940.4	00.1	1469.4	0070	00.2	1268.5	00.2	1128.0	0100	00.3	1171.5	00.1	0509.8	0100	00.1	HTS
54023	0756.1	00.2	1750.0	0060	00.2	0890.9	00.5	0559.4	0080	00.6	1185.1	01.5	0039.1	0095	01.5	DEQ
54023	0232.1	00.1	0592.5	0060	00.1	0481.2	00.3	0234.1	0090	00.3	0718.3	00.6	0121.4	0110	00.4	HTS
54024	0664.2	00.0	1497.4	0070	00.0	0615.2	00.0	1687.4	0070	00.0	2413.7	01.3	0214.2	0150	01.2	DEQ
54024	0427.3	00.0	1517.5	0040	00.0	0412.3	00.0	1393.4	0050	00.0	0238.3	00.0	0225.0	0030	00.0	HTS
54025	0624.4	00.0	2502.8	0070	00.0	0455.9	00.0	2502.8	0050	00.0	1148.3	00.1	0329.3	0130	00.1	DEQ
54025	0319.3	00.0	2430.3	0050	00.0	0211.3	00.0	2430.3	0050	00.0	0154.2	00.0	0349.1	0040	00.0	HTS
54026	1172.8	00.1	0942.1	0150	00.1	1166.7	00.2	0569.4	0110	00.2	2046.0	00.3	0109.2	0120	00.3	DEQ
54026	0220.1	00.1	1203.9	0040	00.3	0499.2	00.2	0830.5	0030	00.2	2509.4	00.3	0068.0	0230	00.3	HTS
54027	0509.1	00.1	0082.0	0045	00.1	0633.6	00.1	0269.3	0050	00.1	1227.9	02.2	0064.2	0090	01.9	DEQ
54027	0556.2	00.1	0637.6	0070	00.2	1030.4	00.1	0823.5	0095	00.2	1129.4	02.2	0056.2	0095	02.3	HTS
54028	1543.5	00.1	2502.8	0100	00.1	1635.4	00.1	1217.2	0120	00.1	0961.4	00.1	0086.7	0060	00.1	DEQ
54028	1399.5	00.1	2509.5	0110	00.2	1102.4	00.1	1315.7	0075	00.2	1747.7	00.1	0081.3	0128	00.2	HTS
54029	0547.8	00.1	2502.8	0050	00.1	0593.7	00.0	1467.3	0050	00.1	0624.4	00.5	0099.2	0060	00.5	DEQ
54029	0268.1	00.1	2106.2	0040	00.1	0532.2	00.1	0973.4	0070	00.1	0628.2	00.7	0088.8	0070	00.7	HTS
54030	0967.5	00.1	1910.1	0055	00.1	1479.2	00.2	0839.5	0120	00.2	0854.2	01.0	0051.7	0075	01.0	DEQ
54030	0944.4	00.2	1899.7	0060	00.2	0919.4	00.4	0582.6	0050	00.4	0700.4	01.0	0054.6	0050	00.9	HTS
54031	1381.1	00.1	2502.8	0075	00.1	0946.1	00.1	0982.1	0060	00.1	0716.3	00.1	0389.2	0070	00.2	DEQ
54031	1441.5	00.2	2430.3	0100	00.2	1672.6	00.1	2215.1	0150	00.1	0985.4	00.1	0371.6	0100	00.2	HTS
54032	0287.3	00.0	1484.8	0030	00.1	0226.1	00.0	1312.3	0035	00.1	0121.9	00.0	0079.2	0025	00.1	DEQ
54032	0740.4	00.1	1302.9	0070	00.1	1825.6	01.2	1215.7	0170	01.3	0943.4	00.4	0042.4	0090	00.4	HTS
54033	0223.0	00.1	1980.1	0020	00.2	0207.7	00.1	0862.0	0020	00.2	0590.7	00.1	0084.2	0040	00.2	DEQ
54033	0319.1	00.2	2163.7	0080	00.2	1612.6	01.0	0737.8	0150	01.2	9996.0	11.1	0033.7	2000	10.0	HTS
54034	0905.2	00.2	2240.2	0050	00.3	0430.3	00.4	0589.4	0040	00.5	0733.6	01.2	0081.7	0060	01.4	DEQ
54034	0658.3	00.2	1787.6	0040	00.4	0262.1	00.4	0422.4	0040	00.7	0661.3	00.7	0084.2	0050	00.9	HTS
54035	1574.3	00.9	0374.3	0065	03.6	1012.4	02.4	0169.2	0050	02.4	0653.9	01.1	0076.7	0050	00.8	DEQ
54035	1728.0	03.1	0982.0	0110	03.2	1099.3	01.9	0285.8	0035	02.4	0187.3	00.1	0122.7	0040	00.4	HTS
54036	1069.0	00.1	1847.5	0070	00.1	0591.0	00.2	0747.0	0070	00.3	0574.3	00.8	0074.2	0050	00.8	DEQ
54036	0941.4	00.1	1736.1	0060	00.1	1507.6	00.9	0838.4	0110	00.7	0454.3	00.7	0054.6	0040	00.8	HTS
54037	0785.7	00.1	2502.8	0060	00.1	0810.2	00.3	1162.2	0060	00.3	0497.7	00.7	0064.2	0050	00.7	DEQ
54037	0368.3	00.2	2511.5	0045	00.3	1378.5	01.8	0553.3	0200	02.0	0445.2	00.8	0056.6	0045	01.0	HTS
54038	0972.6	00.1	1552.4	0065	00.2	1358.7	00.3	0737.0	0110	00.3	1082.9	00.9	0051.7	0090	00.9	DEQ
54038	0265.3	00.1	0663.1	0045	00.2	0796.4	00.3	0429.4	0070	00.3	0976.4	01.0	0044.8	0090	01.0	HTS
54039	0323.0	00.1	1104.7	0030	00.1	0298.5	00.3	0644.4	0030	00.4	0378.2	01.5	0066.7	0040	01.3	DEQ
54039	0499.2	00.1	1208.9	0040	00.2	0406.2	00.3	0622.8	0040	00.6	0661.3	02.2	0054.1	0045	02.8	HTS
54040	0464.0	00.1	0685.5	0035	00.2	0365.9	00.2	0281.8	0035	00.3	0430.3	00.8	0069.2	0040	00.9	DEQ
54040	0364.1	00.1	0730.5	0045	00.1	0604.2	00.8	0317.2	0055	01.2	0472.2	01.1	0056.6	0050	01.4	HTS
54041	0577.3	00.4	1677.4	0050	00.5	0522.2	00.9	0301.8	0050	01.0	0650.9	01.1	0066.7	0065	01.2	DEQ
54041	0637.2	00.4	1792.6	0050	00.6	0520.2	00.9	0332.1	0050	01.2	0631.2	01.1	0071.7	0055	01.4	HTS
54042	0362.5	00.1	1612.4	0040	00.1	0277.1	00.0	0907.1	0040	00.1	0096.3	00.0	0069.2	0025	00.1	DEQ
54042	0424.3	00.1	1305.7	0050	00.2	0259.3	00.0	0595.0	0045	00.1	0094.2	00.0	0074.0	0030	00.0	HTS
54043	1368.2	00.2	2380.7	0090	00.2	1505.9	00.1	1187.0	0130	00.1	0952.2	00.3	0091.2	0080	00.3	HTS
54044	2414.4	00.9	2003.5	0110	00.9	2215.6	00.8	0856.7	0130	01.0	2084.5	02.0	0129.4	0100	02.0	HTS
64002	0650.3	00.3	1898.5	0040	00.9	1841.7	02.2	0810.0	0140	02.0	0872.4	01.8	0045.3	0060	01.5	DEQ
64002	0392.5	00.9	1582.4	0040	01.1	1729.6	02.4	0542.8	0140	02.6	0796.0	01.7	0053.0	0070	01.9	HTS
64003	0146.1	00.0	1149.7	0025	00.0	0146.1	00.0	0817.0	0030	00.0	0287.2	00.0	0071.7	0030	00.0	DEQ
64003	0118.1	00.0	1240.0	0030	00.1	0115.1	00.0	0747.7	0030	00.1	0232.1	00.0	0123.0	0030	00.1	HTS
64004	1160.5	00.4	2077.6	0040	00.4	1503.7	00.5	1715.0	0080	00.5	1083.9	00.1	0431.8	0070	00.1	DEQ
64004	1495.6	00.8	1815.5	0070	00.8	1942.7	00.8	1720.4	0110	00.8	1453.5	00.1	0457.2	0105	00.1	HTS
64005	0397.4	00.0	0449.3	0010	00.1	0183.2	00.0	0209.2	0010	00.1	0146.4	00.0	0226.7	0010	00.1	DEQ
64005	0214.3	00.0	0309.6	0020	00.0	0256.3	00.0	0232.0	0035	00.0	0214.3	00.0	0199.5	0030	00.0	HTS
64006	0452.8	00.0	0907.1	0080	00.1	0333.3	00.0	2177.7	0040	00.1	0219.9	00.0	0239.2	0040	00.1	DEQ
64006	0343.1	00.0	0952.6	0020	00.0	0268.1	00.0	1899.7	0025	00.0	0184.1	00.0	0183.0	0015	00.0	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND PASS

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
64007	0575.3	00.1	0902.1	0030	00.1	0786.8	00.4	0844.5	0043	00.6	0995.1	00.3	0186.7	0035	00.0	DEQ
64007	0532.2	00.1	0675.3	0030	00.1	0511.2	00.2	0535.3	00.3	00.3	0893.3	00.3	0180.5	0060	00.3	MTS
64008	0296.5	00.0	1997.6	0040	00.0	0253.6	00.0	1810.0	0053	00.0	0089.2	00.0	0079.2	0020	00.0	DEQ
64008	0301.5	00.0	1810.5	0050	00.1	0265.3	00.0	1752.9	0055	00.1	0106.2	00.0	0074.5	0050	00.1	MTS
64009	0308.8	00.0	1132.2	0035	00.1	0281.2	00.0	0609.4	0045	00.1	0930.8	00.2	0069.2	0100	00.3	DEQ
64009	0508.2	00.3	0840.2	0060	00.3	0439.2	00.0	0695.3	0053	00.0	3339.1	01.4	0128.0	0300	01.3	MTS
64011	0131.1	00.0	0982.1	0020	00.1	0226.1	00.1	0164.2	0035	00.2	0088.2	00.0	0094.2	0020	00.1	DEQ
64011	0793.4	00.5	0834.9	0060	00.5	2131.7	01.9	0147.0	0143	01.9	1036.6	01.1	0084.4	0100	01.2	MTS
64012	0704.0	00.0	1687.4	0040	00.1	0483.4	00.0	1139.7	0053	00.1	0446.7	00.0	0056.7	0040	00.1	DEQ
64012	0328.1	00.0	1822.3	0065	00.0	0553.2	00.0	0613.3	0083	00.0	2479.5	01.6	0023.0	0110	01.7	MTS
64013	0697.9	00.2	1272.2	0040	00.3	0164.8	00.0	2277.7	0023	00.1	0106.6	00.0	0251.8	0015	00.1	DEQ
64013	1399.5	00.5	1580.2	0070	00.5	0151.2	00.0	2498.4	0023	00.0	0085.2	00.0	0419.6	0010	00.0	MTS
64014	0262.8	00.0	1184.7	0035	00.0	0318.0	00.0	0314.3	0045	00.0	0180.1	00.0	0099.2	0025	00.0	DEQ
64014	0292.3	00.0	1305.0	0040	00.1	0358.3	00.0	0674.8	0073	00.1	0157.2	00.0	0157.0	0050	00.0	MTS
64015	0379.0	00.0	1327.3	0020	00.0	0091.3	00.0	0354.3	0023	00.0	0360.6	00.0	0194.2	0015	00.0	DEQ
64015	0118.1	00.0	1316.7	0040	00.0	0115.1	00.0	0324.4	0053	00.0	0079.0	00.0	0209.1	0050	00.0	MTS
64016	0186.2	00.1	0919.6	0025	00.2	0360.9	00.2	0461.9	0025	00.2	1954.1	00.7	0111.7	0130	00.7	DEQ
64016	0304.1	00.1	1497.1	0030	00.2	1234.5	00.2	0963.4	0040	00.2	2191.8	00.9	0113.9	0040	00.8	MTS
64017	1191.2	00.1	2502.8	0080	00.1	1503.7	00.1	1514.9	0135	00.1	0550.8	00.3	0071.7	0050	00.3	DEQ
64017	1231.5	00.1	2329.1	0050	00.1	1489.6	00.1	1355.8	0053	00.0	0733.3	00.2	0056.2	0030	00.1	MTS
64018	1764.1	01.3	2502.8	0110	01.3	0299.6	00.0	2502.8	0050	00.0	2036.8	01.5	0229.2	0180	01.4	DEQ
64018	1762.6	00.6	2498.4	0080	00.7	0574.3	00.0	2428.3	0023	00.1	3205.7	02.1	0074.4	0210	02.2	MTS
64019	0128.0	00.1	0191.7	0025	00.1	0651.9	00.2	0356.8	0043	00.3	1733.5	01.1	0171.7	0120	00.9	DEQ
64019	0094.2	00.1	0279.6	0025	00.1	0721.4	00.1	0362.1	0053	00.1	1954.7	01.1	0177.0	0130	01.0	MTS
64020	1368.6	00.0	2257.7	0060	00.0	0863.4	00.0	0862.0	0065	00.0	0486.5	00.0	0141.7	0045	00.0	DEQ
64020	0751.4	00.0	2498.4	0070	00.0	0667.4	00.1	0507.3	0053	00.1	0286.3	00.0	0099.4	0040	00.0	MTS
64021	0920.5	00.2	2502.8	0050	00.3	1493.5	00.5	0525.9	0083	00.6	1481.2	00.2	0084.2	0090	00.3	DEQ
64021	0835.4	00.3	2313.5	0060	00.5	1393.5	00.7	0375.9	0083	00.3	1498.6	00.1	0117.9	0100	00.1	MTS
64022	0504.9	00.0	2307.7	0040	00.1	0474.2	00.0	1654.9	0053	00.0	0422.2	00.0	0126.7	0045	00.0	DEQ
64022	0373.1	00.1	1737.7	0050	00.1	0364.1	00.0	1085.2	0073	00.1	0361.1	00.0	0131.4	0060	00.1	MTS
64023	0143.3	00.0	0697.0	0020	00.0	0125.0	00.0	1539.9	0023	00.0	0115.8	00.0	0634.4	0020	00.0	DEQ
64023	0049.0	00.0	0635.1	0035	00.0	0049.0	00.0	1251.6	0043	00.0	0043.0	00.0	0301.8	0030	00.0	MTS
64024	0207.7	00.0	0541.9	0030	00.0	0232.2	00.0	0379.3	0043	00.0	0265.9	00.0	0086.7	0035	00.0	DEQ
64024	0259.3	00.0	0490.3	0030	00.0	0286.3	00.0	0317.5	0043	00.0	0367.3	00.1	0066.7	0035	00.0	MTS
64025	0356.7	00.0	0997.1	0040	00.0	0289.3	00.0	0234.6	0043	00.0	0194.3	00.3	0199.2	0030	00.0	DEQ
64025	0133.1	00.0	1373.7	0020	00.0	0118.1	00.0	0790.6	0023	00.0	0142.1	00.3	0247.5	0030	00.0	MTS
64026	0915.4	00.3	1622.6	0060	00.4	1421.0	00.8	0606.9	0113	00.9	0817.4	00.9	0049.2	0070	01.0	DEQ
64026	0625.4	00.4	1546.7	0040	00.5	1138.5	00.9	0539.3	0063	00.8	0691.4	01.0	0049.7	0050	01.0	MTS
64027	0691.8	00.1	1242.2	0050	00.1	0762.2	00.1	0585.9	0053	00.1	0783.6	00.1	0056.7	0060	00.1	DEQ
64027	0067.0	00.0	0271.7	0040	00.2	0211.1	00.0	0133.9	0055	00.2	0765.3	00.0	0018.6	0500	00.2	MTS
64028	0954.2	00.1	2502.8	0070	00.1	1321.9	00.1	0952.1	0113	00.1	1144.2	00.6	0071.7	0100	00.7	DEQ
64028	1192.5	00.1	2511.5	0150	00.1	1819.7	00.1	0963.9	0233	00.1	1387.5	00.4	0066.7	0180	00.1	MTS
64029	0455.9	00.0	0774.5	0030	00.0	0259.8	00.0	0535.9	0023	00.0	0272.0	00.0	0069.2	0025	00.0	DEQ
64029	0127.1	00.0	0254.2	0030	00.1	0055.0	00.3	0343.7	0033	00.5	4118.7	07.6	0016.1	0150	05.4	MTS
64030	1066.1	00.1	1927.6	0125	00.1	1923.4	00.3	0924.6	0143	00.3	1209.6	00.6	0054.2	0095	00.6	DEQ
64030	0229.1	00.0	0417.1	0040	00.2	0244.1	00.1	0195.6	0025	00.2	0241.1	00.2	0028.7	0025	00.3	MTS
64031	0664.2	00.0	0909.6	0050	00.0	0777.6	00.0	0191.7	0083	00.1	0489.6	00.0	0054.2	0055	00.0	DEQ
64031	0400.3	00.0	0719.1	0040	00.0	0556.3	00.0	0541.4	0065	00.1	0337.3	00.0	0069.2	0050	00.0	MTS
64032	1350.5	00.1	2320.3	0100	00.1	1678.3	00.6	1034.6	0133	00.6	0690.9	00.8	0056.7	0075	00.9	DEQ
64032	0238.1	00.1	0489.8	0025	00.2	0598.2	00.4	0251.7	0043	00.3	0322.1	00.4	0028.7	0020	00.3	MTS
64033	0939.9	00.2	1715.0	0060	00.2	1326.0	01.2	0519.4	0133	01.2	0409.9	00.5	0051.7	0045	00.6	DEQ
64033	0811.3	00.2	1262.3	0120	00.3	1201.5	01.2	0497.3	0153	01.2	0358.1	00.4	0056.2	0100	00.5	MTS
64034	1500.6	00.1	2502.8	0130	00.1	1430.2	00.1	1557.4	0133	00.1	1151.4	01.0	0081.7	0090	00.9	DEQ
64034	1102.4	00.1	2509.5	0090	00.2	1498.6	00.1	1918.1	0153	00.1	0769.3	00.7	0063.7	0040	00.7	MTS
64035	0177.0	00.0	0942.1	0020	00.1	0155.6	00.0	0461.9	0023	00.1	0125.0	00.0	0056.7	0020	00.1	DEQ
64035	0214.1	00.0	1131.3	0030	00.0	0178.1	00.0	0331.9	0043	00.0	0082.0	00.3	0051.2	0030	00.0	MTS
64036	0293.5	00.0	0641.9	0035	00.1	0333.3	00.0	0561.9	0045	00.1	1825.4	00.7	0096.7	0170	00.5	DEQ
64036	0178.1	00.0	0537.4	0020	00.0	0241.1	00.0	0499.8	0043	00.0	0304.1	00.0	0086.3	0040	00.0	MTS
64037	0388.5	00.2	1297.3	0030	00.3	0394.6	00.2	0669.5	0035	00.2	0311.9	00.4	0061.7	0030	00.4	DEQ
64037	0292.3	00.3	1301.5	0050	00.3	0340.3	00.5	0345.7	0053	00.6	0352.3	00.1	0047.3	0060	00.2	MTS
64038	0841.9	00.0	1382.3	0075	00.1	0795.9	00.0	1364.6	0075	00.1	1031.9	00.8	0126.7	0090	00.8	DEQ
64038	0826.4	00.1	1249.6	0090	00.1	0664.4	00.1	0843.8	0083	00.1	0973.4	00.7	0154.5	0100	00.7	MTS
64039	0884.6	00.1	1527.4	0045	00.2	1316.5	00.2	0694.3	0073	00.3	0584.5	00.6	0056.7	0050	00.6	DEQ
64039	0712.3	00.1	1364.8	0070	00.2	1375.5	00.4	0539.8	0113	00.4	0698.3	00.5	0056.2	0090	00.5	MTS
64040	0272.0	00.0	0804.5	0025	00.1	0517.1	00.7	0201.7	0053	00.8	0284.3	00.2	0041.7	0050	00.7	DEQ
64040	0430.2	00.1	0377.0	0040	00.1	0634.2	01.1	0113.9	0053	00.4	0112.0	00.0	0081.3	0040	00.1	MTS
64041	1129.9	00.1	1905.1	0075	00.2	1215.7	00.3	0862.0	0093	00.4	0792.9	00.7	0054.2	0080	00.8	DEQ
64041	0901.3	00.2	1404.4	0060	00.1	1402.5	00.9	0462.2	0143	00.4	0577.2	00.5	0031.2	0060	00.3	MTS
64042	1237.1	00.1	2502.8	0090	00.2	0900.1	00.1	0629.4	0073	00.2	0780.6	01.1	0064.2	0070	01.2	DEQ
64042	1222.5	00.1	2509.5	0135	00.2	1123.4	00.1	0573.0	0143	00.2	1249.5	01.5	0051.2	0175	01.5	MTS
64043	0430.3	00.0	0369.3	0030	00.0	0270.9	00.0	0249.3	0033	00.0	0218.8	00.0	0126.7	0025	00.0	DEQ
64043	0853.4	00.7	0259.0	0050	00.8	0205.3	00.0	0149.5	0023	00.0	1387.5	01.2	0071.6	0100	01.2	MTS
64045	0418.0	00.0	0519.4	0040	00.1	0565.1	00.0	0251.8	0083	00.1	0801.0	00.0	0171.7	0100	00.1	DEQ
64045	0329.3	00.0	0424.6	0065	00.1	0598.3	00.0	0239.6	0035	00.1	0721.4	00.0	0210.4	0105	00.1	MTS
64047	0568.1	00.1	1795.0	0050	00.1	0650.9	00.0	0864.5	0083	00.1	0825.5	00.0	0069.2	0100	00.0	DEQ
64047	0418.3	00.0	1040.3	0050	00.1	0391.3	00.0	0672.9	0053	00.0	0700.4	00.0	0057.0	0060	00.0	MTS
64048	2673.1	03.7	0539.4	0170	03.4	2713.0	02.5	0729.5	0193	02.2	0476.2	00.0	0281.8	0050	00.0	DEQ
64048	2812.9	03.5	0530.5	0190	03.2	2758.9	02.0	0734.5	0213	02.0	0295.3	00.0	0227.4	0050	00.0	MTS
64049	0788.8	00.2	1985.1	0055	00.2	0972.6	00.5	0942.1	0083	00.4	0408.8	00.7	0066.7	0040	00.7	DEQ
64049	0946.4	00.1	2325.5	0045	00.3	0982.4	00.5	0915.8	0053	00.8	0364.1	00.7	0066.7	0050	01.0	MTS
64050	0543.6	00.2	0611.9	0060	00.2	0454.8	00.1	0742.0	0053	00.1	0274.0	00.0	0089.2	0035	00.1	DEQ
64050	0637.2	00.1	0813.1	0050	00.1	0490.2	00.0	1311.0	0053	00.1	0280.1	00.0	0086.7	0050	00.1	MTS
64051	0408.8	00.0	1492.6	0055	00.1	0267.9	00.0	1594.9	0053	00.1	0084.0	00.0	0104.2	0020	00.1	DEQ
64051	0424.3	00.0	1778.0	0070	00.0	0337.3	00.0	1232.7	0073	00.0	0088.2	00.0	0064.3	0040	00.0	MTS
64052	1469.0	01.5	0549.4	0090	01.3	1775.4	01.6	0435.8	0143	01.5	0647.8	00.1	0171.7	0070	00.1	DEQ
64052	0139.2	00.0	0789.7	0040	00.0	0967.4	00.5	0513.5	0093	00.6	0223.3	00.0	0273.6	0040	00.0	MTS
64053	0635.6	00.3	1112.2	0055	00.3	1349.5	00.4	0419.3	0113	00.5	1395.4	00.1	0056.7	0155	00.1	DEQ
64053	0664.2	00.2	1059.3	0070	00.3	2074.8	00.6	0479.9	0173	00.8	1769.7	00.2	0062.3	0200	00.2	MTS
64054	0147.7	00.0	0955.4	0015	00.0	0129.3	00.0	0212.9	0015	00.0	0065.1	00.0	0203.4	0005	00.0	MTS
64055	1658.8	01.1	0757.3	0090	01.2	1888.2	01.9	0174.7	0123	01.9	0374.0	00.0	0217.7	0040	00.0	MTS

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APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND PASS

EPA No	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
64056	0771.7	00.0	1860.3	0040	00.0	1004.2	00.0	1455.3	0100	00.0	0814.5	00.0	0076.8	0080	00.0	HTS
64057	3140.1	01.5	1946.6	0140	01.6	3020.1	00.8	1058.1	0150	00.9	2259.8	00.9	0127.0	0140	01.0	HTS
64058	0186.0	00.0	1357.0	0020	00.0	0277.8	00.1	0289.3	0030	00.1	0235.0	00.0	0131.6	0030	00.0	HTS
64059	0192.1	00.1	1094.9	0010	00.1	0972.4	00.7	0658.1	0020	00.7	0121.7	00.1	0138.9	0010	00.1	HTS
64060	0195.2	00.0	2436.8	0040	00.0	0173.8	00.0	2435.8	0030	00.0	0216.6	00.0	0665.4	0040	00.0	HTS
74002	0146.1	00.0	1196.1	0015	00.0	0086.1	00.0	0969.4	0010	00.0	0161.1	00.0	0192.3	0010	00.0	DEQ
74002	0115.5	00.0	0897.7	0020	00.0	0082.3	00.0	0682.8	0030	00.0	0175.7	00.0	0130.5	0030	00.0	HTS
74003	0119.1	00.0	2483.8	0025	00.0	0092.1	00.0	2354.3	0020	00.0	0071.1	00.0	0331.8	0010	00.0	DEQ
74003	0076.3	00.0	2504.5	0055	00.0	0070.3	00.0	2217.1	0050	00.0	0064.3	00.0	0292.9	0035	00.0	HTS
74004	0116.1	00.0	0416.5	0010	00.0	0101.1	00.0	0214.7	0010	00.0	0227.2	00.5	0057.8	0040	01.0	DEQ
74004	0097.4	00.0	0390.4	0020	00.1	0091.4	00.0	0238.0	0020	00.1	0211.8	00.0	0093.0	0020	00.1	HTS
74005	0051.4	00.0	0324.3	0010	00.1	0112.7	00.0	2502.8	0010	00.1	0866.4	00.2	0269.3	0100	00.7	DEQ
74005	0076.0	00.0	0547.8	0000	00.0	0082.0	00.0	2504.5	0000	00.1	0178.1	00.0	0285.4	0000	00.1	HTS
74006	0216.9	00.0	0500.9	0025	00.1	0207.7	00.0	0361.8	0030	00.1	0155.6	00.0	0534.4	0020	00.1	DEQ
74006	0982.4	00.6	0394.6	0095	00.6	0229.3	00.0	0252.0	0025	00.0	1033.5	00.4	0167.0	0120	00.5	HTS
74007	0060.6	00.0	0201.7	0020	00.1	0097.4	00.0	0892.1	0020	00.1	2012.3	01.2	0176.7	0160	01.5	DEQ
74007	0079.2	00.0	0214.5	0050	00.0	0115.2	00.0	2493.4	0050	00.0	2116.7	00.5	0219.5	0180	00.6	HTS
74009	0584.5	00.2	1559.9	0040	00.3	0995.1	00.5	0802.0	0080	00.5	0394.6	00.1	0071.7	0035	00.1	DEQ
74009	0511.2	00.6	1259.1	0030	00.7	0367.1	00.8	0256.7	0020	00.9	0349.1	00.1	0078.8	0020	00.2	HTS
74010	0060.6	00.0	0797.0	0020	00.0	0072.9	00.0	0264.3	0020	00.0	0045.3	00.0	0346.8	0015	00.0	DEQ
74010	0100.2	00.0	0554.7	0020	00.0	0109.2	00.0	0207.0	0020	00.0	0061.2	00.0	0317.1	0020	00.0	HTS
74011	2652.6	02.3	2232.7	0170	02.1	2685.4	02.2	0689.5	0185	02.0	2410.6	03.2	0094.2	0125	03.0	DEQ
74011	2347.9	01.6	2113.6	0160	01.7	2176.8	01.7	0615.0	0170	01.6	1738.7	01.9	0081.3	0100	01.9	HTS
74012	1623.2	00.3	2227.7	0110	00.3	1105.4	00.2	0777.0	0070	00.2	0792.9	01.1	0066.7	0060	01.0	DEQ
74012	1624.6	00.3	1807.2	0140	00.3	2167.7	00.6	2021.4	0200	00.6	0814.4	01.0	0064.3	0080	01.0	HTS
74014	0645.8	00.4	0470.9	0070	00.4	0201.6	00.0	0219.2	0025	00.1	1785.6	00.4	0121.7	0140	00.4	DEQ
74014	1987.7	01.3	0414.8	0165	01.2	1066.5	00.4	0088.6	0115	00.4	0616.4	00.1	0018.1	0060	00.2	HTS
74015	0140.4	00.0	0626.9	0030	00.1	0140.3	00.0	0329.3	0030	00.1	0219.9	00.0	0129.2	0030	00.1	DEQ
74015	0130.1	00.0	0499.8	0140	00.1	0127.1	00.0	0274.2	0230	00.1	0184.1	00.0	0184.0	0250	00.1	HTS
74016	0270.9	00.6	0907.1	0030	00.6	0154.5	00.5	0191.7	0025	00.5	0482.4	00.7	0051.7	0045	00.8	DEQ
74016	0157.1	00.5	0983.5	0135	00.6	0076.0	00.4	0222.0	0180	00.6	0496.2	00.8	0056.6	0210	01.0	HTS
74017	0348.0	00.5	1027.1	0025	00.5	0134.2	00.4	0276.8	0020	00.4	0379.3	00.9	0051.7	0030	00.8	DEQ
74017	0232.3	00.5	0762.4	0020	00.5	0205.3	00.3	0255.5	0030	00.3	0331.3	00.4	0049.7	0040	00.4	HTS
74018	0261.7	00.0	0426.8	0030	00.1	0197.4	00.0	0229.2	0030	00.1	0172.9	00.0	0244.2	0030	00.1	DEQ
74018	0394.2	00.0	0461.1	0020	00.0	0097.2	00.0	0217.7	0025	00.0	0082.2	00.0	0222.5	0020	00.0	HTS
74019	0672.3	00.3	1217.2	0050	00.4	0675.4	00.5	0391.8	0060	00.6	0650.9	00.1	0076.7	0060	00.2	DEQ
74019	0517.2	00.4	1176.9	0050	00.6	0448.2	00.6	0289.6	0050	00.8	0469.2	00.2	0076.7	0055	00.3	HTS
74020	1616.1	00.6	0894.6	0100	00.7	0390.4	00.0	0757.0	0040	00.1	1723.3	02.2	0084.2	0110	02.2	DEQ
74020	1747.6	00.7	2165.0	0125	00.6	0247.3	00.0	2337.8	0050	00.1	3045.8	03.7	0193.3	0230	03.7	HTS
74021	0180.1	00.0	0546.9	0035	00.0	0146.4	00.0	0284.3	0030	00.0	0290.4	00.1	0064.2	0135	03.0	DEQ
74021	0159.1	00.0	0517.3	0055	00.0	0115.1	00.0	0251.7	0050	00.0	0190.1	00.0	0126.4	0055	00.0	HTS
74023	0231.1	00.4	1192.2	0030	00.4	0482.4	00.4	0279.3	0055	00.4	0660.1	00.9	0056.7	0060	00.9	DEQ
74023	0130.2	00.4	1142.6	0040	00.1	0127.2	00.4	0246.9	0040	00.1	0370.3	00.8	0042.4	0050	00.1	HTS
74024	0200.5	00.4	1234.7	0020	00.5	0313.8	00.5	0345.8	0030	00.6	0519.1	00.6	0049.2	0045	00.6	DEQ
74024	0334.1	00.4	1116.2	0050	00.6	0277.1	00.5	0279.6	0050	00.7	0409.2	00.7	0056.6	0070	01.0	HTS
74025	0237.2	00.0	2502.8	0030	00.1	0218.8	00.0	1619.9	0030	00.1	0200.5	00.1	0101.7	0030	00.2	DEQ
74025	2236.9	00.6	2263.5	0400	01.1	0901.3	00.4	0542.6	0200	00.8	0718.3	00.8	0061.6	0160	01.5	HTS
74026	0215.8	00.0	0616.9	0025	00.1	0139.2	00.0	0335.8	0020	00.1	0117.7	00.0	0216.7	0020	00.1	DEQ
74026	0385.2	00.0	0544.8	0020	00.0	0067.2	00.0	0254.2	0020	00.0	0058.2	00.0	0173.8	0010	00.0	HTS
74027	0359.8	00.0	0629.4	0040	00.1	0267.9	00.0	0501.9	0040	00.1	0209.7	00.0	0251.8	0040	00.1	DEQ
74027	0232.1	00.0	0512.5	0150	00.1	0133.1	00.0	0211.9	0190	00.1	1459.6	01.0	0542.6	0280	01.9	HTS
74028	0172.9	00.0	1840.1	0030	00.1	0166.8	00.0	2502.8	0040	00.1	0093.2	00.0	0251.8	0025	00.1	DEQ
74028	0091.0	00.0	1637.7	0040	00.1	0154.1	00.0	2325.6	0055	00.1	0163.1	00.0	0184.4	0050	00.1	HTS
74031	0225.3	00.0	0762.5	0010	00.0	0169.1	00.0	1822.9	0010	00.0	0115.6	00.0	0189.8	0010	00.0	HTS
74032	0153.6	00.5	1005.6	0000	00.4	0199.7	00.4	0296.5	0000	00.4	0340.4	00.5	0055.4	0000	00.4	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND FAIL

EPA NO	HI (LAB)			HI (GAR)		LO (LAB)			LO (GAR)		IDLE (LAB)			IDLE (GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
25001	2021.7	00.3	2483.8	0110	00.3	2024.7	00.5	1218.4	0120	00.5	1586.6	00.7	0291.9	0110	00.7	DEQ
25001	1741.6	00.0	2534.5	0110	00.4	1681.4	00.6	1255.0	0135	00.6	1410.4	00.9	0305.4	0105	00.9	HTS
25002	0581.3	00.5	2483.8	0040	00.4	1082.4	00.5	1935.9	0090	00.5	0857.4	01.3	0115.1	0090	01.3	DEQ
25002	0446.7	00.5	2297.1	0055	00.5	0931.6	00.7	1272.5	0110	00.7	0687.6	01.3	0060.5	0095	01.3	HTS
25003	1511.6	00.9	1880.0	0070	01.0	1760.7	02.4	0704.5	0120	02.4	1562.6	03.3	0066.7	0100	03.4	DEQ
25003	0720.8	00.6	1512.4	0050	00.8	1302.0	02.0	0417.9	0120	02.0	1121.3	02.2	0070.5	0100	02.2	HTS
25004	1346.5	00.3	1139.7	0080	00.3	1484.6	00.2	0609.4	0100	00.2	3992.1	06.2	0054.2	0270	05.0	DEQ
25004	1157.4	00.3	1140.1	0075	00.5	1262.8	00.2	0595.3	0090	00.4	3928.8	06.2	0058.0	0265	07.2	HTS
25005	1402.6	00.1	2102.6	0070	00.1	2588.3	00.3	1339.8	0190	00.3	1739.6	01.6	0091.7	0100	01.1	DEQ
25005	1225.5	00.1	1734.8	0095	00.2	2011.8	00.1	1172.5	0135	00.2	1279.5	00.1	0125.5	0095	00.2	HTS
25006	1350.5	00.3	2502.8	0060	00.4	1476.1	00.1	2032.6	0080	00.1	2144.0	02.9	0091.7	0140	02.5	DEQ
25006	2461.9	00.6	2504.5	0090	00.6	1711.7	00.3	1957.2	0100	00.4	3818.8	05.8	0083.0	0240	06.4	HTS
25007	1329.1	00.2	1777.5	0080	00.2	1598.7	00.1	0615.9	0130	00.2	2576.0	02.6	0036.6	0210	02.5	DEQ
25007	1387.5	00.2	1900.5	0130	00.4	1684.6	00.1	0654.8	0150	00.2	4805.1	04.8	0054.4	0300	04.0	HTS
25008	1022.7	00.4	1022.1	0080	00.5	1083.9	00.2	0479.4	0070	00.2	6531.1	00.2	0084.2	0960	00.1	DEQ
25008	1174.5	00.3	1257.5	0035	00.4	0868.3	00.1	0587.8	0030	00.1	2311.9	00.7	0178.0	0065	00.8	HTS
25009	1378.1	00.1	1800.0	0080	00.2	1748.8	00.1	1357.3	0150	00.1	1454.7	01.4	0044.2	0135	01.3	DEQ
25009	1933.7	00.2	2436.4	0110	00.2	2425.8	00.1	1445.3	0170	00.1	5164.9	04.5	0069.4	0360	04.4	HTS
25010	1681.4	00.1	2502.8	0110	00.2	3008.0	00.4	2502.8	0220	00.6	3822.1	04.2	0066.7	0340	04.0	DEQ
25010	1723.6	00.1	2498.4	0110	00.1	3675.5	00.8	2358.3	0240	00.7	5934.6	06.3	0081.9	0410	05.6	HTS
25011	1488.4	00.1	2502.8	0110	00.2	2263.5	00.2	2032.6	0180	00.2	3682.2	03.1	0124.2	0300	02.8	DEQ
25011	1546.6	00.2	2504.5	0140	00.3	2648.0	00.8	1659.8	0230	00.9	3638.9	03.0	0130.5	0340	02.8	HTS
25012	1834.6	01.4	2145.2	0110	01.4	4232.0	02.4	0742.0	0240	02.3	9989.7	11.1	0039.1	0500	10.0	DEQ
25012	1861.6	01.6	1878.0	0110	01.6	3985.4	05.0	0292.1	0210	04.7	9992.8	11.1	0031.9	0470	10.0	HTS
25013	2193.1	00.6	2502.8	0140	00.7	2033.7	00.2	1407.3	0140	00.2	3302.3	05.1	0101.7	0210	05.0	DEQ
25013	2344.8	01.1	2430.3	0150	01.0	2245.7	00.5	1254.6	0150	00.5	3505.6	06.4	0074.0	0200	05.6	HTS
25014	2661.8	00.5	2502.8	0160	00.6	3562.2	00.2	2502.8	0260	00.3	3372.3	02.4	0106.7	0230	02.2	DEQ
25014	2861.1	01.1	2509.5	0110	01.2	3159.1	00.3	2318.4	0150	00.4	3054.7	03.3	0169.0	0130	03.4	HTS
25015	1782.5	00.1	2502.8	0125	00.1	2490.3	00.1	2502.8	0200	00.1	2802.8	00.2	0101.7	0250	00.3	DEQ
25015	1651.6	00.1	2430.3	0100	00.1	2805.9	00.1	1938.6	0195	00.1	9992.8	00.1	0064.3	2000	00.2	HTS
25016	0933.8	00.1	1870.0	0065	00.2	1344.4	00.1	1162.2	0090	00.1	4291.9	04.4	0059.2	0390	03.8	DEQ
25016	0655.4	00.1	1907.0	0060	00.2	1594.6	00.1	1464.0	0120	00.2	6394.4	06.3	0057.0	0460	06.4	HTS
25017	2018.4	00.3	2502.8	0130	00.3	2027.6	00.1	1192.2	0140	00.1	3352.3	05.0	0081.7	0210	04.6	DEQ
25017	1903.7	00.4	2509.5	0180	00.5	1801.7	00.2	1391.9	0210	00.3	2873.1	05.4	0103.8	0270	06.2	HTS
25019	1010.4	00.5	2502.8	0065	00.5	1975.5	01.5	0684.5	0140	01.5	2033.7	03.0	0084.2	0130	03.0	DEQ
25019	1282.5	01.0	2430.3	0090	00.9	1591.6	01.9	0534.9	0110	01.8	3055.8	05.5	0074.0	0160	05.2	HTS
25020	2171.6	00.3	2502.8	0150	00.4	2649.6	00.4	2502.8	0200	00.4	5781.3	04.0	0071.7	0650	03.4	DEQ
25020	2458.9	03.5	1487.1	0320	03.6	2188.8	00.3	2539.5	0330	00.4	3788.9	04.2	0148.9	0420	04.4	HTS
25021	2689.4	00.2	2502.8	0160	00.3	3532.2	00.8	1890.0	0250	00.7	4571.8	02.2	0134.2	0430	02.1	DEQ
25021	2140.8	00.2	2509.5	0320	00.4	3399.0	00.8	1692.6	0450	01.0	5168.2	01.2	0256.7	0760	01.4	HTS
25022	1220.8	00.2	2502.8	0080	00.2	0620.2	00.1	0401.8	0055	00.1	2912.1	04.0	0069.2	0245	03.8	DEQ
25022	1354.5	00.2	2367.0	0090	00.2	0889.4	00.1	0392.9	0060	00.2	3835.5	04.8	0052.1	0260	04.2	HTS
25023	0531.4	00.2	1374.8	0040	00.3	0736.7	00.1	0744.5	0060	00.2	0923.6	00.1	0139.2	0260	00.1	DEQ
25023	0664.3	00.2	1346.7	0200	00.4	1297.5	00.1	0763.0	0270	00.3	1603.6	00.2	0227.0	0300	00.3	HTS
25024	2673.1	00.1	2502.8	0190	00.2	3652.2	00.4	2022.6	0250	00.4	9989.7	06.5	0079.2	0580	05.5	DEQ
25024	1819.7	00.1	2511.5	0250	00.3	2479.9	00.3	1647.3	0350	00.5	6167.8	04.2	0064.2	0700	04.3	HTS
25025	2529.1	00.7	2327.8	0110	00.8	3062.4	01.4	0972.1	0160	01.5	2922.5	03.0	0104.2	0100	02.8	DEQ
25025	2359.9	00.9	2313.6	0210	01.2	2696.0	01.1	1063.6	0300	01.2	3119.2	04.4	0081.7	0300	04.8	HTS
25026	1806.0	00.1	2502.8	0110	00.2	1432.2	00.1	0847.0	0090	00.2	0911.3	00.1	0134.2	0070	00.2	DEQ
25026	1354.5	00.1	2241.0	0180	00.1	2203.8	00.1	1355.1	0250	00.1	1954.7	00.1	0106.7	0300	00.1	HTS
25027	1248.4	00.1	2145.2	0080	00.2	2618.0	00.2	0927.1	0160	00.2	9989.7	07.3	0031.6	0740	06.8	DEQ
25027	1441.6	00.2	1940.4	0150	00.3	2539.4	00.2	0750.5	0270	00.3	9996.0	07.9	0044.1	1200	08.5	HTS
25028	1897.9	00.3	2345.3	0110	00.4	2605.7	00.2	0150.3	0160	00.2	4321.9	05.8	0084.2	0280	05.3	DEQ
25028	1831.7	00.3	2511.5	0210	00.5	2143.8	00.1	1587.2	0270	00.3	5847.9	05.7	0099.2	0560	06.0	HTS
25029	1591.5	00.9	2502.8	0080	01.0	1983.7	01.4	1594.9	0125	01.6	1708.0	04.6	0096.7	0090	04.5	DEQ
25029	1762.7	01.0	2411.3	0210	01.5	1783.7	01.0	1404.3	0240	01.3	2191.8	05.5	0084.2	0260	06.3	HTS
25030	2982.5	00.4	2502.8	0140	00.5	3342.3	00.4	1785.0	0190	00.5	4341.9	06.0	0076.7	0240	05.3	DEQ
25030	3579.0	00.6	2511.5	0300	01.0	3878.8	00.7	1559.8	0370	01.1	4518.5	05.0	0091.7	0400	05.8	HTS
25031	1380.1	00.1	2502.8	0080	00.2	3092.4	00.6	1890.0	0230	00.7	7290.8	06.5	0081.7	0520	05.2	DEQ
25031	1468.6	00.1	2511.5	0210	00.3	2855.1	00.2	1885.3	0320	00.3	8146.8	06.6	0119.3	0700	06.8	HTS
25032	1208.5	00.6	1624.9	0070	00.8	2336.1	01.0	0872.1	0170	01.2	5761.4	06.0	0051.7	0400	05.6	DEQ
25032	1141.5	00.6	1344.7	0070	00.6	2536.0	01.1	0685.0	0160	01.2	4325.3	04.2	0154.4	0290	04.0	HTS
25033	2143.1	01.8	0957.1	0090	01.8	2682.3	03.9	0221.7	0150	03.8	3522.2	06.7	0064.2	0235	06.7	DEQ
25033	2017.8	01.6	1128.8	0150	01.7	2555.0	03.2	0322.2	0210	03.2	3379.0	05.4	0089.2	0290	05.6	HTS
25034	0641.7	00.3	0619.5	0040	00.5	1300.5	00.3	0629.4	0080	00.3	3892.1	06.0	0069.2	0280	05.8	DEQ
25034	9996.0	00.2	0960.9	1700	00.5	9996.0	00.2	0590.2	1970	00.3	9996.0	02.5	0096.7	2000	02.8	HTS
25035	2152.3	01.1	2485.3	0130	01.1	2513.8	00.7	1522.4	0170	00.6	3232.4	04.1	0124.2	0220	04.0	DEQ
25035	2251.7	00.9	2430.3	0130	01.2	2842.9	01.4	1434.8	0190	01.6	3355.7	03.7	0093.5	0225	07.1	HTS
25036	1021.6	00.9	1324.8	0050	01.0	0788.8	00.2	0844.3	0050	00.3	3122.4	05.5	0096.7	0210	05.2	DEQ
25036	0667.4	00.5	1193.8	0050	00.6	0505.3	00.2	0672.9	0040	00.2	3715.5	06.3	0071.6	0210	05.8	HTS
25037	1560.9	00.8	2502.8	0090	00.8	2553.6	01.5	2225.2	0170	01.3	3892.1	06.6	0114.2	0250	05.4	DEQ
25037	1663.6	00.9	2511.5	0260	01.3	2739.3	02.2	1892.8	0350	03.5	3938.8	06.1	0124.3	0390	06.8	HTS
25038	1701.8	00.2	2502.8	0110	00.2	2186.0	00.1	1424.8	0140	00.2	1806.0	00.1	0206.7	0150	00.1	DEQ
25038	2611.8	00.3	2430.3	0140	00.4	2104.7	00.1	1837.2	0135	00.2	1654.6	00.1	0237.1	0125	00.2	HTS
25039	0451.7	01.0	0967.1	0040	01.2	1830.5	03.0	0224.2	0140	03.0	5691.4	05.6	0034.1	0220	05.4	DEQ
25039	0661.4	00.2	1731.7	0040	00.4	1702.6	01.2	0663.1	0120	01.2	3765.5	04.7	0044.8	0170	04.6	HTS
25040	2084.8	01.4	1337.4	0100	01.4	2892.5	02.5	0564.4	0170	02.4	6691.0	06.4	0056.7	0330	05.8	DEQ
25040	1399.5	00.4	1920.3	0170	00.7	2719.4	01.5	0637.8	0290	02.0	5458.1	05.8	0079.2	0430	06.5	HTS
35001	1607.6	00.5	1654.4	0100	00.5	1484.6	00.4	0725.3	0080	00.3	2675.9	03.7	0060.3	0190	03.4	DEQ
35001	2419.2	00.5	2504.5	0190	00.7	2139.1	00.5	0940.1	0150	00.7	2786.6	02.8	0093.0	0220	03.4	HTS
35002	1361.5	00.1	2222.7	0110	00.2	1709.6	00.1	1234.7	0115	00.2	8840.1	00.1	0071.7	1100	00.1	DEQ
35002	1735.6	00.1	2427.0	0095	00.2	1847.0	00.1	1395.0	0125	00.2	8486.7	00.1	0095.5	1200	00.2	HTS
35003	1595.6	00.3	2483.8	0060	00.2	1760.7	00.1	2339.4	0120	00.1	2507.9	03.1	0072.7	0160	02.8	DEQ
35003	1726.6	00.5	2504.5	0110	00.6	1895.2	00.1	2434.5	0140	00.2	2500.5	02.8	0135.5	0170	03.0	HTS
35004	9989.7	00.3	2048.0	2000	00.3	9989.7	00.1	1250.9	2000	00.1	9989.7	03.9	0032.9	2000	03.6	DEQ
35004	9996.0	00.3	2464.5			9996.0	00.1	0827.7			9996.0	05.3	0040.5			HTS
35005	2348.8	00.9	2483.8	0120	00.8	3142.4	01.8	1392.9	0200	01.7	2202.8	02.5	0045.3	0160	02.3	DEQ
35005	2593.8	01.0	2504.5	0140	00.9	3539.0	02.0	1285.0	0220	01.6	3309.1	02.3	0138.0	0240	01.8	HTS
35006	1120.7	00.3	1647.4	0020	00.1	2269.7	02.2	0481.9	0120	01.8	2524.0	04.4	0046.7	0130	03.8	DEQ
35006	0711.7	00.1	1345.0	0040	00.2	2021.7	01.9	0560.3	0140	02.1	2527.6	04.3	0068.0	0170	05.0	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND FAIL

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
35007	1706.6	00.9	1042.1	0110	01.0	2048.7	00.3	0339.3	0150	00.3	3652.2	00.0	0099.2	0400	00.1	DEQ
35007	1207.5	02.5	1630.4	0170	02.0	1135.5	00.6	1617.9	0195	01.0	2755.9	00.1	0239.5	0180	00.1	HTS
35008	1509.8	00.3	1612.4	0100	00.3	2278.8	00.1	0807.0	0140	00.2	4192.0	03.6	0059.2	0320	03.6	DEQ
35008	2281.7	00.5	1532.8	0120	00.5	2524.8	00.2	0572.3	0140	00.2	4755.1	04.3	0051.9	0320	03.2	HTS
35009	1197.3	00.6	0621.9	0040	00.4	2073.6	01.8	0581.9	0070	01.1	2260.5	02.1	0114.2	0090	01.3	DEQ
35009	0322.3	00.1	0542.2	0050	00.2	1303.5	00.5	0682.3	0095	00.5	1285.5	00.3	0167.0	0110	00.3	HTS
35010	3702.2	01.1	1925.1	0120	01.1	3832.1	00.4	0599.4	0120	00.3	7780.6	01.1	0046.7	0500	01.4	DEQ
35010	1585.6	01.2	1992.2	0070	01.2	1795.7	00.3	0520.3	0090	00.4	6657.5	00.8	0055.5	0700	00.9	HTS
35011	2931.4	00.9	2017.6	0170	00.9	2618.9	00.1	1740.0	0130	00.2	2330.9	03.0	0046.7	0175	02.6	DEQ
35011	2666.0	01.0	2509.5	0080	01.0	2609.0	00.3	1820.4	0150	00.3	2675.0	03.5	0053.7	0215	02.8	HTS
35012	1944.9	00.2	2502.8	0130	00.2	2738.4	00.7	1462.3	0200	00.8	4541.8	06.7	0074.2	0225	06.2	DEQ
35012	1405.5	00.2	2430.3	0090	00.3	2614.8	01.2	1181.6	0150	01.4	6104.5	08.1	0057.0	0250	08.7	HTS
35014	2432.0	01.1	1367.3	0160	01.0	2845.7	00.9	1007.1	0230	00.8	6421.1	04.8	0024.1	0300	04.2	DEQ
35014	2776.9	01.1	1641.7	0170	01.2	3805.5	01.6	0738.6	0250	01.6	8223.6	07.0	0027.8	0360	06.4	HTS
35015	0422.2	00.2	1229.7	0030	00.2	1886.7	01.5	0509.4	0085	01.7	2677.2	05.1	0054.2	0130	05.2	DEQ
35015	0112.0	00.1	1026.5	0020	00.1	1429.5	00.6	0667.7	0080	00.9	2407.9	03.5	0063.7	0090	01.3	HTS
35016	0360.9	00.3	0479.4	0040	00.3	0526.3	00.3	0264.3	0050	00.4	1797.8	03.4	0056.7	0100	03.2	DEQ
35016	0397.3	00.3	0414.8	0040	00.3	0499.3	00.3	0234.7	0060	00.4	1594.6	03.1	0064.3	0120	03.0	HTS
35017	1580.3	00.6	2502.8	0095	00.6	2514.8	02.1	1067.1	0175	02.3	3142.4	06.5	0049.2	0150	05.6	DEQ
35017	1492.6	00.6	2430.3	0100	01.0	3115.8	03.2	0689.9	0280	03.2	4285.3	07.3	0054.6	0220	07.5	HTS
35018	0906.2	00.2	1997.6	0050	00.2	2821.2	03.6	0471.9	0160	02.6	3402.3	05.2	0076.7	0205	04.2	DEQ
35018	0784.3	00.2	2018.4	0140	00.3	2374.9	03.2	0467.2	0265	03.5	1687.6	00.4	0108.9	0230	00.3	HTS
35019	2508.6	00.3	2502.8	0150	00.4	4391.9	03.5	0842.0	0300	03.1	9989.7	08.4	0034.1	0600	07.8	DEQ
35019	2158.8	00.4	2509.5	0250	00.7	3429.0	11.1	0464.7	0400	07.3	9996.0	07.9	0036.2	0700	08.0	HTS
35020	1288.2	00.1	2502.8	0075	00.2	1842.8	00.1	2502.8	0130	00.1	4062.0	04.4	0114.2	0250	04.0	DEQ
35020	0859.4	00.1	2430.3	0050	00.1	0880.4	00.1	0839.2	0050	00.1	2692.8	01.3	0171.4	0180	01.6	HTS
35021	2081.8	00.1	2502.8	0135	00.2	3522.2	01.3	2232.7	0280	01.3	5721.4	02.6	0079.2	0480	02.5	DEQ
35021	1981.8	00.1	2511.5	0260	00.2	3638.9	01.0	2296.1	0400	01.2	8106.9	00.2	0089.2	0460	02.2	HTS
35022	1062.9	01.1	1284.8	0055	01.1	1141.1	00.6	0456.9	0075	00.6	1370.9	01.6	0049.2	0105	01.5	DEQ
35022	1060.4	01.2	1259.0	0065	01.6	0931.4	00.6	0347.2	0070	00.8	1570.6	01.7	0054.1	0085	02.0	HTS
35023	2884.5	02.8	0849.5	0130	03.0	3832.1	04.0	0236.7	0180	03.6	7720.6	10.0	0041.7	0320	09.6	DEQ
35023	3848.6	03.7	1354.2	0290	04.0	4938.3	04.9	0537.6	0370	05.1	8976.5	10.1	0061.6	0410	10.0	HTS
35024	3502.2	02.1	2502.8	0170	02.0	3802.1	02.9	1557.4	0270	03.0	4461.9	04.3	0196.7	0360	04.2	DEQ
35024	4068.7	01.8	2511.5	0270	02.1	3469.0	02.3	1642.3	0370	02.8	4388.6	03.7	0217.0	0560	04.2	HTS
35025	0997.1	00.6	1479.6	0060	00.6	2409.6	02.8	0694.5	0170	02.6	3302.3	06.7	0059.2	0210	06.6	DEQ
35025	0761.3	00.9	1264.0	0050	01.0	2528.0	04.4	0364.7	0250	04.4	5867.9	08.5	0051.6	0400	07.8	HTS
35026	0608.0	00.1	0839.5	0045	00.2	0994.1	00.4	0421.8	0065	00.4	2299.3	02.7	0056.7	0140	02.7	DEQ
35026	0424.3	00.2	0804.3	0040	00.1	1450.5	00.5	0397.8	0090	00.4	3265.7	04.3	0027.8	0130	04.0	HTS
35027	1922.5	00.7	2197.7	0120	00.8	2357.5	00.4	1765.0	0180	00.5	2932.5	05.4	0084.2	0180	05.2	DEQ
35027	2194.7	01.0	1933.8	0110	01.0	2581.8	00.6	1709.8	0155	00.5	3225.7	06.3	0074.0	0150	05.5	HTS
35028	0770.4	00.2	1127.2	0040	00.3	1554.6	01.2	0829.5	0120	01.3	3452.3	06.7	0046.7	0200	06.6	DEQ
35028	0628.2	01.1	0480.0	0125	01.3	1441.6	02.3	0234.5	0175	02.4	5128.2	07.5	0041.6	0300	08.0	HTS
35029	3442.5	01.8	2502.8	0180	01.9	4291.9	04.0	0874.6	0290	04.0	4871.7	06.9	0096.7	0360	07.0	DEQ
35029	3269.1	01.0	2511.5	0240	01.2	4368.6	03.5	0935.9	0375	04.0	4858.4	06.1	0129.3	0440	06.7	HTS
35030	2023.6	00.5	2502.8	0110	00.5	2706.8	00.1	0749.5	0170	00.2	9989.7	00.2	0196.7	1200	00.2	DEQ
35030	2002.7	00.3	1887.5	0100	00.3	2059.7	00.1	0704.5	0140	00.2	9992.8	00.5	0254.2	1500	00.5	HTS
35031	1885.7	00.8	2502.8	0130	01.1	1564.0	00.6	0867.0	0120	00.6	5191.6	07.3	0044.2	0240	06.4	DEQ
35031	1651.6	00.6	2430.5	0110	00.6	1135.5	00.3	1074.5	0100	00.4	6414.4	07.8	0044.8	0260	07.0	HTS
35032	0148.4	00.6	0524.4	0025	00.6	0338.3	00.6	0366.8	0030	00.6	0565.1	01.2	0059.2	0050	01.3	DEQ
35032	0409.2	02.9	0222.0	0090	03.1	0523.2	02.3	0234.5	0130	02.9	1624.6	03.9	0066.7	0190	04.0	HTS
35033	0356.7	00.1	0844.5	0030	00.2	0942.0	01.3	0421.8	0070	01.4	0984.9	02.9	0059.2	0070	02.8	DEQ
35033	0268.1	00.3	0750.5	0040	00.5	0658.3	01.6	0337.2	0050	02.0	0649.3	02.1	0084.2	0050	02.5	HTS
35034	0945.0	00.3	2190.2	0050	00.3	3152.4	02.0	0704.5	0170	02.0	4801.7	06.2	0056.7	0270	06.4	DEQ
35034	1111.5	00.2	2145.5	0050	00.3	3865.5	01.4	0915.3	0200	02.0	6814.2	07.6	0042.4	0270	08.0	HTS
35035	2939.2	01.5	1982.0	0110	01.6	3509.0	02.7	0790.7	0200	02.8	4028.7	02.8	0112.7	0250	03.0	HTS
45001	2489.9	00.3	2150.1	0140	00.3	3122.4	01.3	1522.4	0210	01.3	3152.4	01.0	0269.5	0250	01.1	DEQ
45001	2060.8	00.2	1662.3	0120	00.4	2834.8	01.2	1315.0	0210	01.4	3778.9	00.9	0230.5	0310	00.6	HTS
45002	1856.7	00.6	1731.6	0100	00.7	1589.6	00.6	0224.7	0110	00.8	1283.5	01.7	0020.4	0110	01.6	DEQ
45002	0832.2	00.9	1434.9	0060	00.6	3059.2	00.5	0687.8	0200	00.4	4138.7	05.4	0088.0	0300	01.5	HTS
45003	2442.7	00.3	1338.1	0140	00.4	2922.5	00.9	1462.6	0210	00.8	3872.1	04.8	0030.4	0240	04.4	DEQ
45003	2690.2	00.6	1152.6	0215	00.7	3588.9	01.4	1340.0	0260	01.5	4488.3	06.5	0073.0	0280	06.8	HTS
45004	1055.6	00.1	1913.3	0100	00.1	2102.8	00.1	1548.2	0190	00.2	2781.0	03.8	0047.6	0180	03.2	DEQ
45004	1341.0	00.1	1922.2	0140	00.2	2693.2	00.2	1714.8	0180	00.3	4808.4	06.1	0203.0	0300	07.1	HTS
45005	1628.6	00.2	2502.8	0110	00.3	2126.8	00.6	1257.2	0180	00.7	2033.7	03.5	0041.7	0160	03.4	DEQ
45005																HTS
45006	1160.5	00.2	0849.5	0070	00.2	1199.5	00.2	0156.7	0070	00.2	3838.3	03.0	0009.1	0220	03.2	DEQ
45006	1991.6	00.4	1057.6	0100	00.5	2379.5	00.7	0205.5	0090	00.8	9996.0	10.0	0038.0	0900	09.0	HTS
45007	1310.7	00.1	2502.8	0060	00.2	1463.9	00.1	1710.0	0095	00.1	1788.6	02.0	0089.2	0150	01.7	DEQ
45007	1777.7	00.3	2504.5	0070	00.5	1159.4	00.1	0507.8	0050	00.3	3249.1	04.7	0063.0	0150	06.4	HTS
45008	1583.4	01.8	1907.6	0110	01.6	1687.5	00.9	1249.7	0100	00.5	1751.9	02.9	0064.2	0150	03.9	DEQ
45008	2446.6	02.7	2288.3	0130	02.4	2872.9	01.9	1610.4	0130	01.8	3785.5	05.5	0094.4	0220	04.6	HTS
45009	1221.8	00.1	2502.8	0085	00.2	1666.1	00.5	1052.1	0130	00.5	4212.0	04.1	0026.6	0125	03.8	DEQ
45009	2239.7	00.5	2498.4	0140	00.4	4085.4	02.0	1460.3	0430	01.0	9992.8	11.1	0034.4	0440	10.0	HTS
45010	1313.7	00.8	2502.8	0085	00.7	1227.9	01.1	0491.9	0080	01.1	1571.1	03.3	0071.7	0120	02.5	DEQ
45010	1951.7	02.5	1988.3	0140	02.2	2131.8	03.7	0299.3	0140	04.0	3309.1	07.1	0066.3	0220	07.5	HTS
45011	2422.9	01.7	0757.0	0130	01.4	3662.2	05.6	0074.2	0230	04.8	7610.6	04.9	0026.6	0290	04.2	DEQ
45011	2758.9	02.5	0852.4	0130	02.2	4585.2	07.5	0074.4	0250	07.3	4715.1	06.5	0046.9	0180	06.2	HTS
45012	2128.7	01.0	1139.7	0150	01.1	2787.4	01.1	0381.8	0190	01.1	3672.2	05.2	0086.7	0260	04.6	DEQ
45012	2314.8	01.2	0924.9	0130	01.2	2935.9	01.4	0269.6	0180	01.6	3885.5	04.6	0079.4	0260	04.6	HTS
45013	2597.5	00.2	2350.3	0160	00.2	3512.2	00.6	2397.8	0270	00.6	3102.4	02.4	0099.2	0230	02.2	DEQ
45013	2780.1	00.3	2509.5	0205	00.4	3618.9	01.1	1948.2	0300	01.1	2989.2	02.2	0083.8	0240	02.0	HTS
45014	2343.2	00.4	2502.8	0170	00.2	2910.0	01.4	0834.5	0210	01.4	5851.3	07.3	0064.2	0270	06.5	DEQ
45014	1438.6	00.1	2336.6	0115	00.2	2194.8	00.6	1284.1	0160	00.8	4638.5	06.4	0056.2	0240	07.0	HTS
45015	1601.7	00.2	0697.0	0085	00.3	4082.0	02.0	0657.0	0270	02.0	9609.8	08.9	0039.1	0390	08.2	DEQ
45015	1228.5	00.2	0648.5	0050	00.2	4275.3	02.1	0619.3	0230	02.0	9992.8	10.1	0035.1	0380	10.0	HTS
45016	2522.6	00.5	2502.8	0140	00.5	2682.6	01.7	1322.3	0230	01.5	9989.7	09.9	0046.7	0430	08.6	DEQ
45016	1309.4	00.5	1188.9	0130	00.4	2709.4	01.4	0397.0	0250	03.2	7217.3	05.2	0033.7	0450	09.2	HTS
45017	2572.6	00.6	2502.8	0220	00.5	2892.5	00.1	1725.0	0230	00.2	3852.1	02.1	0099.2	0280	02.0	DEQ
45017	1744.6	00.4	2498.4	0100	00.4	1411.5	00.1	1600.3	0090	00.2	3905.4	02.1	0079.4	0220	01.9	HTS
45018	1935.7	00.2	1207.2	0130	00.3	1476.1	00.1	0837.0	0110	00.2	1169.7	01.3	0054.2	0100	01.3	DEQ
45016	2152.8	00.3	1868.0	0210	00.5	1717.7	00.2	0732.8	0210	00.3	1882.7	01.4	0093.8	0230	01.4	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 PORTLAND FAIL

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
45019	1378.1	00.1	1832.5	0090	00.1	1794.8	00.3	2392.8	0135	00.4	2707.8	05.3	0066.7	0185	04.9	DEQ
45019	1642.6	00.1	1902.1	0120	00.2	2392.8	00.5	2430.3	0190	00.5	3305.7	06.0	0164.1	0200	06.6	HTS
45020	2922.5	00.1	1297.3	0200	00.2	3612.2	00.2	0684.5	0230	00.3	9989.7	01.0	0049.2	2000	01.0	DEQ
45020	1309.5	00.2	2256.4	0165	00.3	2371.9	00.4	0850.6	0270	00.5	9996.0	01.4	0056.2	1900	02.0	HTS
45021	3992.1	03.7	0621.9	0260	03.6	3362.3	00.4	1902.6	0245	00.5	3052.4	03.3	0096.7	0180	03.4	DEQ
45021	4115.4	03.3	0682.6	0250	03.0	3325.7	00.5	1517.5	0230	00.9	2676.0	02.7	0096.0	0160	02.8	HTS
45022	0356.7	00.1	1162.2	0040	00.1	0571.2	00.2	0814.5	0045	00.3	0859.2	00.3	0339.3	0065	00.4	DEQ
45022	0688.3	00.2	2456.4	0160	00.3	0697.3	00.4	0865.7	0150	00.5	0688.3	00.1	0234.5	0160	00.2	HTS
45023	0133.1	00.1	0656.9	0020	00.1	0485.4	00.1	0626.9	0045	00.1	7360.7	03.3	0061.7	0600	03.3	DEQ
45023	0100.2	00.1	0621.7	0040	00.1	0382.3	00.1	0529.0	0050	00.1	7793.8	03.7	0091.1	0750	03.8	HTS
45024	2664.0	00.8	1267.2	0140	00.9	3272.3	01.1	1439.8	0210	01.2	2322.7	02.3	0116.7	0140	02.2	DEQ
45024	2702.0	00.7	1131.3	0200	00.7	3239.1	00.8	1138.7	0300	01.4	2309.5	02.2	0144.3	0240	02.4	HTS
45025	2244.2	00.6	1324.8	0120	00.9	4202.0	06.8	0151.7	0290	06.4	6980.9	08.2	0046.7	0330	08.0	DEQ
45025	1839.8	00.8	2195.9	0270	01.1	5308.2	07.0	0219.5	0470	07.4	8826.5	08.7	0064.2	0490	09.2	HTS
45026	2204.3	02.6	1870.0	0160	02.7	1574.5	03.0	0331.8	0150	03.0	2706.8	07.5	0061.7	0180	07.0	DEQ
45026	2455.9	02.3	2040.6	0210	02.6	2014.8	01.8	0542.6	0175	02.0	2678.0	06.1	0129.3	0230	06.2	HTS
45027	2005.2	00.1	2502.8	0140	00.2	2742.5	00.1	1674.9	0180	00.3	4381.9	04.8	0096.7	0300	04.4	DEQ
45027	1228.5	00.1	2511.5	0150	00.2	2104.8	00.5	1614.7	0220	00.5	3209.1	04.1	0109.2	0230	04.3	HTS
45028	2002.1	00.3	2502.8	0110	00.4	3422.3	03.0	1154.7	0230	03.0	4741.8	05.1	0089.2	0270	04.8	DEQ
45028	1738.7	00.5	2511.5	0180	00.7	3539.0	03.8	0810.6	0400	04.2	5028.3	05.8	0096.7	0400	06.0	HTS
45029	2333.0	00.8	2195.2	0160	00.8	3072.4	00.4	1880.0	0230	00.4	5751.4	06.2	0109.2	0300	05.2	DEQ
45029	2308.9	00.4	1975.4	0220	00.7	2329.9	00.8	1552.1	0240	01.0	5168.2	06.1	0089.2	0350	06.4	HTS
45030	0264.8	00.2	0256.8	0010	00.3	1089.0	01.0	0179.2	0070	01.0	1223.9	01.0	0054.2	0095	01.0	DEQ
45030	0463.3	00.1	0250.6	0000	00.2	1141.5	00.3	0215.2	0040	00.4	1177.5	00.7	0059.4	0050	00.8	HTS
45031	2165.8	00.2	2430.8	0080	00.2	2695.2	00.6	2143.0	0120	00.6	0954.1	00.7	0291.7	0150	00.7	HTS
45032	0946.1	00.3	1830.4	0050	00.3	2229.6	00.5	0924.4	0150	00.6	5028.3	01.3	0086.4	0500	01.4	HTS
45033	2359.3	01.3	1748.1	0150	01.5	2331.8	00.2	2397.4	0160	00.2	3670.3	05.3	0112.7	0220	05.0	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	---HI (LAB)--- HC	CO	NOX	HI (GAR) HC	CO	---LO (LAB)--- HC	CO	NOX	LO (GAR) HC	CO	--IDLE (LAB)-- HC	CO	NOX	IDLE(GAR) HC	CO	LAB
56001	0302.7	00.0	2502.8	0050	00.1	1727.4	00.4	1379.8	0140	00.5	9989.7	05.6	0026.6	0640	05.5	DEQ
56001	0859.3	00.3	2509.5	0080	00.4	4258.6	01.8	1504.6	0250	02.0	9996.0	11.1	0031.2	1500	10.0	HTS
56002	0174.0	00.1	1985.1	0020	00.1	0155.6	00.0	1537.4	0020	00.1	2744.6	04.8	0066.7	0160	03.8	DEQ
56002	0133.2	00.0	1565.3	0020	00.0	0100.2	00.0	0552.2	0020	00.0	2775.9	03.1	0066.9	0170	03.0	HTS
56003	0134.2	00.0	0501.9	0010	00.1	0226.1	00.0	0435.8	0020	00.1	2753.7	04.7	0071.7	0180	04.5	DEQ
56003	0247.1	00.0	0492.8	0040	00.0	0364.1	00.0	0732.7	0050	00.0	3808.8	06.1	0070.5	0240	06.0	HTS
56004	0311.9	00.1	1144.7	0030	00.1	0532.5	00.1	0054.7	0040	00.1	1001.2	01.8	0041.7	0060	01.7	DEQ
56004	0382.2	00.0	1207.5	0030	00.1	0508.2	00.0	0495.3	0050	00.1	2657.0	02.7	0050.5	0120	02.4	HTS
56005	0587.6	00.0	0802.0	0060	00.1	1917.3	00.0	0501.9	0280	00.1	0400.7	00.0	0121.7	0070	00.1	DEQ
56005	0661.4	00.0	1050.0	0090	00.0	1654.6	00.0	0677.3	0190	00.0	0517.3	00.0	0332.1	0070	00.0	HTS
56006	0174.0	00.0	2502.8	0045	00.0	0226.1	00.0	2192.7	0040	00.0	2851.8	04.0	0149.2	0220	03.2	DEQ
56006	0115.2	00.0	2498.4	0030	00.0	0103.2	00.0	1717.9	0030	00.0	0124.2	00.0	0339.6	0030	00.0	HTS
56007	2021.5	00.8	2002.6	0130	00.7	2049.1	01.1	0569.4	0150	00.9	2030.7	02.4	0049.2	0150	02.1	DEQ
56007	2329.9	01.1	2025.9	0180	01.2	2452.9	01.2	0995.9	0200	01.3	2597.0	02.6	0108.9	0160	03.0	HTS
56008	1295.4	00.6	1047.1	0080	00.6	2309.5	02.9	1094.7	0160	02.6	5001.7	08.9	0046.7	0280	08.4	DEQ
56008	1444.6	01.1	0833.1	0200	01.2	2603.0	03.3	0845.5	0270	03.6	5328.1	09.6	0051.2	0400	10.0	HTS
56009	0992.0	00.4	1399.8	0060	00.5	1065.6	01.4	0331.8	0080	01.4	0697.9	00.7	0071.7	0055	00.7	DEQ
56009	0784.3	00.6	1810.4	0080	00.7	0589.2	00.9	0412.1	0070	01.0	0553.2	00.5	0053.7	0075	00.6	HTS
56010	1638.5	00.3	1132.2	0090	00.3	1635.4	00.3	0426.8	0085	00.3	2579.1	03.4	0079.2	0100	03.2	DEQ
56010	0907.4	00.2	2013.5	0080	00.2	0766.3	00.1	0294.3	0070	00.2	1768.7	02.3	0073.8	0100	02.1	HTS
56011	0795.9	00.2	2502.8	0055	00.2	0416.0	00.5	0649.4	0040	00.5	0327.2	00.4	0101.7	0035	00.4	DEQ
56011	0151.1	00.3	0085.2	0040	00.3	0175.1	00.6	0103.8	0050	00.4	0223.1	00.4	0033.7	0100	00.4	HTS
56013	2422.7	00.5	1747.5	0140	00.5	3592.2	02.9	1052.1	0280	02.8	9989.7	08.9	0041.7	1660	08.2	DEQ
56013	2344.9	00.5	1569.8	0220	00.6	3019.2	01.5	0053.7	0240	01.6	9996.0	09.2	0038.7	0626	09.4	HTS
56014	0146.4	00.0	0236.7	0025	00.0	0167.9	00.0	1602.4	0035	00.0	1865.2	01.8	0076.7	0170	01.7	DEQ
56014	0184.3	00.0	1198.6	0025	00.0	0193.3	00.0	1619.7	0030	00.0	2623.8	03.1	0096.0	0190	03.2	HTS
56015	0195.4	00.0	0341.8	0025	00.0	0351.7	00.0	1437.3	0050	00.0	2499.4	05.3	0069.2	0180	05.0	DEQ
56015	0235.1	00.0	0449.7	0070	00.1	0409.2	00.0	1351.8	0120	00.1	2642.0	06.1	0154.0	0300	06.0	HTS
56016	0746.9	00.0	1977.6	0040	00.0	0949.1	00.0	1089.7	0090	00.0	1813.1	00.0	0081.7	0250	00.0	DEQ
56016	1708.7	00.7	1750.2	0200	00.8	2555.0	03.7	0510.0	0340	03.5	5268.2	01.8	0061.2	0600	02.0	HTS
56017	2205.3	02.7	0782.0	0130	02.6	1951.0	01.5	0191.7	0125	01.5	2306.4	01.7	0091.7	0175	01.7	DEQ
56017	2549.0	04.8	0517.3	0340	05.5	3099.2	04.9	0093.8	0450	05.8	3818.8	05.2	0048.7	0600	06.0	HTS
56018	0930.8	00.1	1654.9	0070	00.1	1013.5	00.1	0544.4	0070	00.1	4361.9	05.8	0059.2	0280	05.5	DEQ
56018	0715.4	00.3	1241.1	0080	00.4	0940.4	00.1	0497.6	0080	00.2	6684.3	05.6	0044.8	0290	05.0	HTS
56019	0287.3	00.0	0793.8	0030	00.0	0425.2	00.2	0134.2	0050	00.4	2125.7	02.4	0051.7	0150	02.3	DEQ
56019	1312.5	01.7	0780.0	0090	01.7	2101.7	02.5	0127.6	0140	02.6	3015.8	03.6	0044.8	0160	03.6	HTS
56020	0134.2	00.0	1359.8	0020	00.0	0121.9	00.0	0391.8	0025	00.0	0094.3	00.0	0181.7	0020	00.0	DEQ
56020	0163.2	00.0	1191.3	0030	00.1	0148.2	00.0	0271.2	0030	00.1	0094.2	00.0	0161.7	0025	00.1	HTS
56021	0399.6	00.0	2502.8	0040	00.0	1174.8	00.4	1149.7	0125	00.5	3482.3	06.9	0066.7	0210	06.5	DEQ
56021	0142.2	00.0	2430.3	0030	00.0	1804.6	01.0	1120.7	0140	01.0	3255.7	06.4	0064.3	0200	06.4	HTS
56022	0341.4	00.0	1990.1	0050	00.0	0369.0	00.0	1132.2	0050	00.0	2688.5	01.8	0151.7	0195	01.7	DEQ
56022	0625.2	00.7	1702.4	0200	01.2	2269.9	03.1	0893.3	0330	03.8	4438.6	06.9	0146.8	0460	07.0	HTS
56023	0378.2	00.0	0456.9	0040	00.0	0249.5	00.0	0365.8	0040	00.0	1389.3	00.8	0109.2	0160	00.9	DEQ
56023	0175.3	00.0	0446.5	0030	00.0	0145.2	00.0	0234.7	0035	00.0	2275.7	01.1	0130.0	0220	01.3	HTS
56024	0559.0	00.1	1805.0	0040	00.2	0568.1	00.2	0994.6	0045	00.2	1101.3	02.1	0084.2	0090	02.2	DEQ
56024	0544.3	00.1	1780.4	0050	00.2	0619.4	00.4	0838.4	0050	00.5	1132.5	02.1	0083.8	0110	02.2	HTS
56025	1208.5	00.2	2502.8	0080	00.3	1131.9	00.1	1272.2	0080	00.1	0991.0	00.6	0071.7	0090	00.6	DEQ
56025	1243.5	00.3	2430.3	0110	00.3	1555.6	00.1	1919.2	0150	00.1	1168.5	00.9	0061.9	0110	01.0	HTS
56026	0534.4	00.9	0386.8	0045	01.1	0408.8	00.7	0181.7	0040	00.8	3712.2	01.9	0091.7	0290	01.8	DEQ
56026	0943.4	00.8	0417.4	0140	01.0	1870.7	01.5	0402.3	0250	02.0	4238.6	03.0	0091.7	0540	03.2	HTS
56027	1723.3	03.2	0451.8	0105	02.8	2446.4	03.4	0414.3	0165	02.8	3502.2	02.5	0146.7	0245	02.1	DEQ
56027	1699.7	02.6	0347.2	0140		2409.5	03.6	0299.6	0150		3888.8	02.9	0091.7	0380		HTS
56028	0600.1	00.1	2050.1	0060	00.2	0899.1	00.0	0615.9	0080	00.1	1508.8	00.2	0119.2	0135	00.3	DEQ
56028	0892.3	00.2	2511.5	0160	00.4	1117.4	00.1	0642.8	0210	00.3	2819.3	01.2	0111.7	0380	01.7	HTS
56029	0249.5	00.2	0974.6	0030	00.4	0237.2	00.3	0246.7	0040	00.6	0111.6	00.0	0131.7	0025	00.1	DEQ
56029	0142.2	00.1	0965.0	0015	00.0	0481.3	01.0	0200.6			1132.5	00.9	0521.9			HTS
56030	1539.5	00.5	2502.8	0095	00.5	1940.8	01.1	1107.2	0130	01.1	2103.2	01.6	0086.7	0140	01.7	DEQ
56030	2611.6	03.7	1380.1	0150	03.4	2761.9	03.8	0582.8	0190	03.6	2737.8	02.9	0071.6	0195	02.9	HTS
56031	0304.6	00.4	1262.2	0030	00.4	0264.8	00.3	0364.3	0030	00.4	0604.9	02.2	0064.2	0050	02.2	DEQ
56031	0373.3	00.1	1841.3	0050	00.1	0148.2	00.1	0478.1	0020	00.1	0559.3	01.0	0076.5	0050	00.9	HTS
56032	2581.2	01.9	1342.3	0150	02.1	3382.3	02.0	1107.2	0200	02.2	3712.2	03.8	0104.2	0235	03.8	DEQ
56032	3295.7	03.1	0899.2	0180	02.8	4915.0	03.4	0801.9	0215	03.2	7334.0	07.7	0096.0	0320	07.2	HTS
56033	0810.2	00.0	2502.8	0070	00.1	1631.4	00.2	1107.2	0170	00.3	7230.8	06.5	0076.7	0450	06.6	DEQ
56033	0904.4	00.0	2121.2	0060	00.1	0802.4	00.0	0729.3	0050	00.1	7533.9	05.3	0059.4	0460	05.4	HTS
56034	0896.0	00.7	2062.6	0090	00.8	1107.4	00.7	0832.0	0110	00.9	0387.4	00.0	0119.2	0060	00.1	DEQ
56034	0763.4	00.6	1635.6	0050	00.6	0514.3	00.3	0665.7	0050	00.4	0229.3	00.0	0189.2	0030	00.0	HTS
56035	0465.4	00.1	0907.1	0050	00.1	1079.8	00.1	0229.2	0090	00.1	4252.0	00.1	0109.2	0400	00.1	DEQ
56035	0394.1	00.3	0532.0	0045	00.4	0684.8	00.2	0170.4	0060	00.2	2358.6	00.2	0124.3	0300	00.2	HTS
56036	1708.0	00.2	2502.8	0100	00.2	1551.7	00.1	1209.7	0110	00.2	0813.3	00.2	0104.2	0070	00.2	DEQ
56036	1429.4	00.2	2397.4	0120	00.2	1720.0	00.1	1590.5	0155	00.2	1634.3	01.0	0110.3	0125	01.2	HTS
56037	3419.0	05.2	0403.9	0160	05.0	3708.9	05.0	0318.0	0240	05.0	3229.1	01.0	0411.1	0180	01.1	HTS
56038	0176.8	00.1	0859.5	0000	00.1	0430.8	00.1	0910.5	0010	00.1	0730.7	01.3	0066.1	0020	01.3	HTS
56039	0169.1	00.0	2397.4	0020	00.0	0196.6	00.0	2397.4	0030	00.0	2160.5	02.7	0275.0	0120	02.7	HTS
56040	2312.7	03.0	0488.3	0120	03.0	2926.7	03.0	0355.9	0180	03.2	6958.1	06.6	0056.4	0480	07.0	HTS
66001	0116.1	00.0	0902.1	0025	00.0	0110.1	00.0	0289.4	0015	00.0	1325.5	01.3	0042.8	0140	01.3	DEQ
66001	0470.8	00.0	0672.8	0030	00.1	0205.8	00.0	0375.4	0030	00.1	2735.4	02.1	0123.0	0230	01.9	HTS
66002	0353.2	00.0	1829.0	0030	00.1	0317.2	00.0	1647.0	0020	00.1	0089.1	00.0	0215.0	0020	00.1	DEQ
66002	0362.4	00.0	1802.3	0035	00.1	0323.2	00.0	1449.9	0030	00.0	0106.4	00.0	0173.0	0010	00.0	HTS
66003	0854.4	00.0	0932.7	0060	00.0	0728.3	00.0	0414.0	0055	00.0	5651.4	07.7	0042.8	0340	07.0	DEQ
66003	0669.6	00.1	0898.0	0040	00.1	0609.3	00.0	0293.0	0040	00.1	5208.2	07.1	0076.0	0100	07.1	HTS
66004	0131.1	00.0	1952.6	0015	00.0	0179.1	00.0	1464.8	0030	00.1	2162.8	04.2	0076.7	0140	04.5	DEQ
66004	0238.9	00.0	1527.2	0040	00.1	0151.6	00.0	1442.4	0050	00.1	1962.5	03.9	0093.0	0130	04.5	HTS
66005	0226.1	00.0	0772.0	0010	00.1	0170.9	00.0	1062.1	0010	00.1	1804.0	02.9	0051.7	0080	01.5	DEQ
66005	0130.2	00.0	0762.3	0020	00.0	0166.2	00.0	1430.2	0030	00.0	4355.3	06.0	0051.9	0310	05.8	HTS
66006	0186.2	00.0	1522.4	0025	00.0	1258.6	00.3	0757.0	0080	00.1	5131.6	06.7	0039.1	0370	06.0	DEQ
66006	2230.9	00.6	0637.6	0200	00.4	1654.6	00.5	0270.4	0160	00.4	9996.0	04.6	0025.5	2000	05.0	HTS
66007	0468.1	00.0	0989.6	0040	00.1	0578.4	00.0	0694.5	0050	00.1	3202.4	02.0	0181.7	0250	02.0	DEQ
66007	1147.5	00.7	0950.0	0090	00.6	0568.3	00.0	0472.2	0070	00.1	3985.4	01.9	0282.1	0260	01.7	HTS
66008	0707.1	00.2	0832.0	0070	00.3	2395.3	01.3	0531.9	0210	01.3	3602.2	03.9	0016.6	0280	03.6	DEQ
66008	2194.7	00.2	1537.8	0180	00.3	7903.7	00.3	0904.9	0820	00.5	9992.8	06.5	0046.9	2000	08.2	HTS

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APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	HI (LAB)			HI (GAR)		LO (LAB)			LO (GAR)		IDLE (LAB)			IDLE (GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
66009	0207.7	00.1	0829.5	0025	00.2	0413.0	00.2	0369.3	0020	00.2	0973.6	00.1	0079.2	0060	00.1	DEQ
66009	0094.0	00.1	0782.9	0030	00.2	0373.1	00.2	0355.9	0040	00.2	1027.4	00.1	0076.3	0060	00.2	HTS
66010	0416.0	00.1	1114.7	0035	00.1	0915.4	00.2	0827.0	0065	00.2	1372.0	02.1	0121.7	0100	01.9	DEQ
66010	1108.4	00.6	0702.8	0070	00.8	1738.7	01.7	0399.5	0120	02.0	1948.7	03.2	0083.8	0130	03.8	HTS
66011	1148.3	00.1	1124.7	0060	00.1	1997.0	00.5	1197.2	0140	00.6	3902.1	06.1	0051.7	0240	05.8	DEQ
66011	0787.4	00.1	1075.0	0060	00.1	1429.5	00.3	0982.5	0130	00.2	3725.5	06.5	0039.4	0220	06.1	HTS
66012	2168.6	02.7	0772.0	0130	02.3	1911.2	01.8	0556.9	0120	01.6	1163.6	00.2	0054.2	0090	00.2	DEQ
66012	1753.7	01.9	1023.5	0200	02.0	2287.9	01.7	0695.2	0250	01.5	1114.4	00.1	0048.7	0175	00.2	HTS
66013	2049.1	00.0	1232.2	0220	00.0	1635.4	00.0	0972.1	0190	00.0	9989.7	11.1	0024.1	2000	10.0	DEQ
66013	1360.5	00.0	1016.0	0100	00.1	1102.4	00.0	0833.1	0120	00.1	9996.0	10.7	0028.7	1020	10.0	HTS
66014	0216.9	00.1	1642.4	0025	00.1	1053.3	00.1	1524.9	0050	00.2	1813.1	02.2	0094.2	0140	02.1	DEQ
66014	0247.3	00.1	1770.7	0030	00.1	0940.4	00.2	1395.8	0050	00.2	2671.8	02.6	0105.7	0130	02.3	HTS
66015	2337.1	00.3	2502.8	0120	00.3	2306.4	00.2	1164.7	0120	00.2	2892.5	02.4	0074.2	0180	02.0	DEQ
66015	2443.9	00.6	2509.5	0140	00.6	2107.8	00.3	1101.2	0150	00.4	2519.0	01.9	0073.8	0140	01.8	HTS
66016	0526.3	00.0	2502.8	0060	00.1	2962.5	03.5	0455.9	0230	03.4	4801.7	04.8	0006.6	0360	04.3	DEQ
66016	0430.3	00.0	2430.3	0040	00.0	4535.2	06.9	0266.3	0370	07.0	9992.8	10.4	0015.6	0700	10.0	HTS
66017	2606.7	01.0	2502.8	0140	01.0	2661.8	01.0	1497.4	0155	01.0	3462.3	05.4	0064.2	0160	05.8	DEQ
66017	0601.2	00.3	0725.3	0130	01.5	0640.2	00.3	0284.3	0130	02.0	0868.3	01.6	0033.7	0130	05.0	HTS
66018	0572.3	00.3	2502.8	0055	00.4	0553.9	00.1	1890.0	0090	00.1	2174.7	03.1	0084.2	0140	03.2	DEQ
66018	0310.3	00.1	2430.3	0060	00.2	0319.3	00.0	1585.5	0050	00.2	1480.6	01.1	0078.9	0110	01.5	HTS
66019	0125.0	00.0	1167.2	0020	00.0	0100.5	00.0	0519.4	0020	00.0	2689.4	01.6	0109.2	0230	01.5	DEQ
66019	0127.1	00.0	1113.7	0080	00.0	0082.0	00.0	0402.0	0090	00.0	2377.9	01.3	0133.9	0270	01.3	HTS
66020	0670.3	00.0	2042.6	0050	00.0	0455.9	00.0	1109.7	0040	00.0	2836.5	02.3	0076.7	0200	03.2	DEQ
66020	0163.2	00.0	1695.2	0020	00.0	0121.2	00.0	1098.8	0020	00.0	0097.2	00.0	0088.6	0020	00.0	HTS
66021	0342.5	00.0	2210.2	0050	00.0	1702.8	00.2	1689.9	0130	00.2	4142.0	05.5	0071.7	0250	04.8	DEQ
66021	0361.1	00.0	1873.0	0200	00.1	2467.9	00.9	1225.5	0350	01.0	4918.3	06.2	0048.7	0500	06.0	HTS
66022	0210.8	00.0	1247.2	0030	00.1	1653.8	01.4	0224.2	0120	01.6	2888.6	02.0	0179.2	0220	01.9	DEQ
66022	0205.3	00.0	0867.1	0040	00.1	1162.5	01.1	0175.3	0110	01.3	2341.8	01.0	0173.8	0210	01.2	HTS
66023	0522.2	00.0	2067.6	0065	00.0	0393.5	00.0	0669.5	0065	00.0	0752.0	00.0	0334.3	0110	00.0	DEQ
66023	0757.3	00.0	1882.8	0055	00.1	0379.2	00.0	0602.7	0065	00.1	0562.2	00.0	0324.7	0090	00.1	HTS
66024	0218.8	00.0	2502.8	0040	00.0	0421.1	00.3	1669.9	0070	00.3	2078.7	02.3	0246.7	0110	02.1	DEQ
66024	0295.3	00.0	2430.3	0040	00.0	1831.6	01.2	2143.0	0120	01.2	2497.8	03.1	0166.5	0220	02.8	HTS
66025	0546.7	00.0	1214.7	0050	00.0	0454.8	00.0	0451.8	0045	00.0	4301.9	05.4	0056.7	0380	05.2	DEQ
66025	0424.3	00.0	0930.9	0050	00.0	0220.3	00.0	0685.0	0040	00.0	3605.6	01.1	0181.1	0240	01.2	HTS
66026	1766.2	00.7	1272.2	0100	00.8	2762.5	01.3	0259.3	0180	01.4	4471.9	06.8	0091.7	0320	06.7	DEQ
66026	0439.3	00.0	0480.6	0050	00.0	0454.3	00.1	0115.4	0050	00.1	0457.3	00.4	0020.5	0065	00.5	HTS
66027	0418.0	00.0	0712.0	0045	00.0	0341.4	00.0	1820.0	0050	00.0	3532.2	06.2	0116.7	0300	05.9	DEQ
66027	0070.0	00.0	1180.4	0020	00.1	0148.1	00.0	2133.3	0040	00.1	5738.0	09.4	0064.2	0500	09.8	HTS
66028	1643.6	00.4	2502.8	0095	00.5	1573.2	00.8	1297.3	0085	00.9	2348.4	05.2	0101.7	0120	05.0	DEQ
66028	1789.7	00.4	2511.5	0085	00.7	2399.5	01.1	1215.4	0100	01.5	3588.9	05.8	0096.7	0390	06.3	HTS
66029	0326.1	00.0	2502.8	0040	00.0	1717.2	01.0	0794.5	0140	00.9	2375.9	01.7	0244.2	0175	01.6	DEQ
66029	0457.3	00.0	2430.3	0030	00.0	2170.7	01.1	0431.9	0150	01.1	1510.6	00.6	0203.1	0130	00.7	HTS
66030	1643.6	00.1	2502.8	0100	00.2	1600.7	00.1	1187.2	0120	00.1	1233.0	00.1	0086.7	0110	00.1	DEQ
66030	1483.6	00.1	2430.3	0100	00.1	1483.6	00.1	1198.6	0130	00.1	1450.5	00.1	0186.0	0140	00.1	HTS
66031	1174.8	00.1	2502.8	0090	00.2	1021.6	00.1	0992.1	0080	00.2	0571.2	00.8	0091.7	0060	00.9	DEQ
66031	1363.5	00.1	2511.5	0055	00.2	1087.4	00.1	0853.2	0050	00.2	0664.3	00.8	0099.2	0040	01.0	HTS
66032	0295.4	00.0	0594.4	0030	00.1	0329.2	00.0	0431.8	0050	00.1	0390.4	00.0	0359.3	0075	00.1	DEQ
66032	0235.1	00.0	0565.1	0025	00.1	0253.1	00.0	0374.8	0045	00.1	0262.1	00.0	0439.9	0055	00.1	HTS
66033	1407.7	01.5	1199.7	0090	01.6	2265.6	03.6	0184.2	0160	03.4	3502.2	06.1	0091.7	0240	05.6	DEQ
66033	0148.2	00.0	1412.8	0040	00.0	2242.7	02.1	0222.5	0140	02.2	3335.7	02.5	0108.1	0230	03.0	HTS
66034	1404.6	00.2	0709.5	0090	00.3	1303.5	00.1	0704.5	0110	00.1	4721.8	05.2	0086.7	0360	05.1	DEQ
66034	1342.5	00.3	0687.5	0080	00.3	1681.6	00.2	0441.6	0130	00.4	5194.9	04.7	0059.4	0325	04.6	HTS
66035	0850.0	00.0	1612.4	0050	00.1	0387.4	00.0	0892.1	0040	00.1	0301.6	00.0	0804.5	0040	00.1	DEQ
66035	0874.3	00.2	1507.0	0040	00.3	0214.1	00.0	0773.1	0035	00.1	0142.1	00.0	0535.1	0035	00.1	HTS
66036	3312.3	03.2	1757.5	0160	02.9	3482.3	04.2	0724.5	0220	03.8	3842.1	05.9	0051.7	0120	04.8	DEQ
66036	3199.1	02.4	2023.0	0300	03.0	3219.1	03.4	0733.0	0375	04.1	4018.7	06.0	0074.2	0325	07.0	HTS
66037	1141.1	00.3	2502.8	0080	00.5	0583.5	00.6	0649.4	0050	00.9	0721.4	00.3	0104.2	0050	00.4	DEQ
66037	1096.4	00.7	2511.5	0050		0454.2	00.8	0439.9	0050		0853.3	00.1	0091.7	0050	00.1	HTS
66038	3492.3	07.9	0111.7	0275	08.2	3622.2	03.4	0246.7	0300	03.3	4281.9	02.7	0079.2	0375	02.8	DEQ
66038	3304.6	06.9	0232.0	0250	06.9	2047.3	00.6	0540.0	0200	01.0	1869.9	00.0	0079.2	0100	00.1	HTS
66039	2301.2	02.7	0690.4	0140	02.9	2362.4	02.4	0530.5	0160	02.6	3229.1	03.2	0136.5	0220	03.5	HTS
66040	1781.2	00.0	1358.9	0140	00.0	0995.0	00.0	0241.6	0090	00.0	0542.3	00.0	0079.2	0060	00.0	HTS
66041	0505.6	02.0	0506.6	0000	02.0	0380.1	01.1	0205.8	0000	01.0	8016.9	08.1	0050.6	0220	08.1	HTS
66042	0403.3	00.1	1094.9	0000	00.2	0308.4	00.0	1179.8	0010	00.1	1700.7	00.4	0148.6	0070	00.6	HTS
66043	0773.5	00.0	2436.8	0050	00.0	3975.4	02.4	0995.4	0240	02.2	9992.8	08.0	0073.3	0450	08.0	HTS
66044	0446.1	00.0	1228.4	0030	00.1	2205.6	02.8	0201.9	0140	02.8	3495.6	04.3	0083.0	0220	04.4	HTS
66045	0505.6	00.1	1058.1	0000	00.1	2628.5	02.4	0384.8	0130	02.6	5590.9	06.5	0036.3	0260	06.4	HTS
66046	1887.4	02.2	0563.5	0110	02.2	2826.7	04.2	0135.4	0190	04.4	6347.9	07.2	0041.8	0470	07.6	HTS
66047	1674.1	00.0	2397.4	0140	00.0	2269.8	00.0	1783.9	0240	00.1	9992.3	09.2	0076.8	1400	08.8	HTS
76001	0194.1	00.0	0917.1	0030	00.0	0143.1	00.0	0443.9	0020	00.0	1376.5	01.7	0030.4	0170	01.7	DEQ
76001	0103.4	00.0	0785.2	0020	00.0	0112.4	00.0	0395.4	0022	00.0	3588.9	02.3	0088.0	0270	02.2	HTS
76002	0116.1	00.0	0787.0	0030	00.0	0116.1	00.0	0446.8	0030	00.0	1616.6	01.2	0069.2	0150	01.1	DEQ
76002		00.0		0020	00.1		00.0		0030	00.2		00.0				HTS
76003	0115.8	00.0	1109.7	0010	00.1	0106.6	00.0	0305.8	0010	00.1	1911.2	01.9	0089.2	0160	01.7	DEQ
76003	0250.1	00.0	0885.2	0015	00.0	0241.1	00.0	0282.9	0010	00.0	3509.0	03.3	0105.5	0310	04.1	HTS
76004	0198.5	00.0	0629.4	0040	00.0	0195.4	00.0	0264.3	0010	00.0	3792.1	02.7	0469.4			DEQ
76004	0241.3	00.0	0852.4	0050	00.1	0286.3	00.0	0259.9	0050	00.1	4705.1	03.5	0359.6	0340	03.5	HTS
76005	0079.0	00.0	0849.5	0025	00.0	0125.0	00.0	0201.7	0020	00.0	2815.0	03.9	0064.2	0225	03.4	DEQ
76005	0067.0	00.0	0707.8	0025	00.1	0082.0	00.0	0261.7	0020	00.1	3339.1	04.9	0043.7	0260	05.8	HTS
76006	2775.2	01.4	2222.7	0140	01.3	2986.6	01.8	0872.1	0170	01.7	2395.3	02.5	0126.7	0100	02.2	DEQ
76006	2389.9	02.2	1873.0	0150	02.8	2792.1	03.9	0364.5	0210	04.8	3209.1	05.8	0066.3	0160	07.2	HTS
76007	2821.2	01.6	2502.8	0165	01.4	2493.3	00.9	1577.4	0140	00.9	2677.2	03.6	0091.7	0135	03.1	DEQ
76007	2170.8	01.5	2509.5	0130	01.6	1981.8	01.4	0920.8	0130	01.5	2134.8	02.2	0159.0	0100	02.0	HTS
76008	2254.3	00.7	0439.3	0170	00.7	1638.5	00.2	0195.7	0150	00.2	5741.4	04.4	0091.7	0490	04.1	DEQ
76008	2521.8	00.6	0419.7	0195	00.6	1600.6	00.1	0164.1	0170	00.1	7134.1	04.7	0100.8	0540	04.2	HTS
76009	0912.4	00.5	0539.4	0100	00.4	0204.6	00.0	0281.8	0030	00.1	4421.9	01.7	0094.2	0380	01.6	DEQ
76009	1975.7	00.6	0524.4	0170	00.8	0478.3	00.1	0144.6	0050	00.2	5664.7	02.9	0064.3	0440	03.0	HTS
76010	2542.3	00.6	0824.5	0220	00.6	5241.6	01.1	0499.4	0470	01.0	9989.7	11.1	0021.6	1380	10.0	DEQ
76010	1356.5	00.4	0526.8	0150	00.2	4335.3	00.7	0933.3	0400	00.4	9992.8	10.5	0025.4	1100	10.0	HTS
76011	2312.6	00.6	2400.3	0120	00.6	2836.5	01.0	1182.2	0160	00.9	4232.0	05.7	0074.2	0225	04.8	DEQ
76011	2392.8	01.3	1848.6	0170	02.2	3695.5	03.8	0392.9	0230	03.0	4025.4	06.3	0076.5	0180	04.3	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE (GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
76012	0731.6	00.0	0737.0	0070	00.0	0848.0	00.0	0214.2	0050	00.1	8040.5	07.4	0029.1	0450	07.0	DEQ
76012	0640.2	00.0	0800.5	0060	00.1	0454.2	00.0	0261.7	0065	00.1	6037.8	06.2	0026.2	0720	06.4	HTS
76013	0973.6	00.3	0762.0	0110	00.3	3702.2	02.1	1932.6	0285	01.9	5671.4	04.6	0126.7	0420	04.0	DEQ
76013	1246.5	00.4	2336.6	0285	00.6	3559.0	02.1	1672.5	0450	02.4	6517.6	03.6	0073.8	0720	04.1	HTS
76014	0131.1	00.0	1967.6	0030	00.1	0118.8	00.0	1007.1	0025	00.1	2876.3	02.0	0124.2	0240	01.9	DEQ
76014	0184.1	00.0	1517.2	0045	00.1	0139.1	00.0	0782.9	0050	00.1	3658.9	02.6	0058.7	0510	03.1	HTS
76015	0353.7	00.0	0722.0	0035	00.1	0231.1	00.0	0284.3	0030	00.1	2691.5	03.4	0099.2	0240	03.3	DEQ
76015	0205.3	00.0	0706.9	0040	00.1	0154.2	00.0	0273.6	0035	00.1	3405.7	03.5	0100.8	0250	03.5	HTS
76016	2302.4	00.8	1124.7	0170	00.9	0555.9	00.0	2112.7	0070	00.1	3922.1	03.9	0079.2	0330	03.2	DEQ
76016	2317.9	00.8	0736.0	0290	01.2	0829.3	00.2	0868.2	0250	00.2	3988.8	02.9	0099.2	0600	03.1	HTS
76017	1070.7	00.0	0912.1	0110	00.0	0779.6	00.0	0344.3	0070	00.0	6341.1	07.9	0039.1	0430	07.2	DEQ
76017	0103.0	00.0	0736.0	0050	00.1	0196.1	00.0	0292.1	0055	00.1	6077.8	07.4	0039.1	0680	07.8	HTS
76018	1453.7	00.4	0476.9	0130	00.5	0473.2	00.0	0101.7	0045	00.0	6081.2	07.4	0034.1	0350	06.6	DEQ
76018	0364.3	00.1	0254.2	0040	00.0	0253.3	00.0	0175.3	0010	00.0	4705.1	06.2	0035.1	0320	06.2	HTS
76019	1401.6	00.0	2502.8	0145	00.0	3612.2	01.4	1965.1	0275	01.3	9989.7	11.1	0039.1	1100	10.0	DEQ
76019	0601.4	00.1	2430.3	0170	00.2	3715.5	01.6	1756.1	0390	01.8	9992.8	11.1	0025.4	1300	10.0	HTS
76020	0620.2	00.0	1797.5	0050	00.1	0381.2	00.0	0822.0	0045	00.1	2921.3	02.3	0121.7	0240	02.3	DEQ
76020	0481.3	00.0	1670.9	0060	00.0	0367.3	00.0	0582.8	0050	00.0	3575.6	03.6	0049.7	0280	03.5	HTS
76021	0801.0	00.5	1404.8	0065	00.6	1355.6	00.4	1017.1	0115	00.5	5311.5	08.6	0056.7	0380	08.2	DEQ
76021	0727.3	00.5	1256.5	0050	00.6	1318.5	00.4	0943.4	0075	00.6	4878.4	07.9	0074.2	0520	08.0	HTS
76022	0794.9	00.7	0474.4	0065	00.7	0249.5	00.1	0209.2	0035	00.0	8200.4	08.0	0026.6	0660	07.5	DEQ
76022	0799.3	00.4	0998.5	0100	00.5	0517.2	00.0	0567.6	0125	00.1	6167.8	05.3	0056.6	0500	05.4	HTS
76023	0356.7	00.0	0887.1	0060	00.1	0430.3	00.0	0395.8	0060	00.0	4891.7	06.0	0074.2	0360	05.4	DEQ
76023	0352.3	00.0	0602.3	0050	00.0	0490.3	00.0	1337.4	0060	00.0	5314.8	05.8	0044.8	0440	05.5	HTS
76024	0185.1	00.0	0887.1	0030	00.1	0341.4	00.0	0164.2	0030	00.1	5351.5	07.9	0029.1	0400	07.3	DEQ
76024	0589.2	00.3	0392.3	0040	00.4	0823.3	00.3	0314.6	0050	00.3	5777.9	07.6	0036.6	0600	08.5	HTS
76025	0286.3	00.0	0744.5	0040	00.0	0341.4	00.0	0229.2	0060	00.0	4611.8	04.4	0039.1	0330	04.0	DEQ
76025	0211.3	00.0	1704.9	0025	00.1	0154.2	00.0	0855.4	0030	00.1	4905.0	04.0	0061.9	0350	04.0	HTS
76026	0243.4	00.0	1034.6	0040	00.0	0240.3	00.0	0579.4	0040	00.0	3572.2	02.0	0171.7	0260	02.0	DEQ
76026	0145.1	00.0	0953.4	0045	00.1	0139.1	00.0	0510.0	0045	00.1	1831.7	00.6	0181.9	0350	01.0	HTS
76027	0506.9	00.0	1795.0	0070	00.0	0329.2	00.0	0769.5	0050	00.0	3212.4	02.4	0116.7	0250	02.4	DEQ
76027	0310.1	00.0	1504.5	0045	00.1	0313.1	00.0	0597.7	0050	00.1	3369.1	02.2	0086.7	0375	02.4	HTS
76028	0365.9	00.0	0566.9	0030	00.0	0559.0	00.0	1807.5	0040	00.0	4331.9	05.8	0116.7	0280	04.9	DEQ
76028	0343.3	00.1	0655.8	0045	00.1	2065.7	01.5	2077.4	0150	01.5	5764.7	07.3	0078.9	0360	07.5	HTS
76029	0393.5	00.1	2502.8	0030	00.0	1799.9	00.9	2457.8	0170	01.0	6850.9	09.0	0074.2	0460	07.9	DEQ
76029	0247.3	00.0	1930.8	0030	00.1	2785.9	01.4	1778.0	0220	01.6	7224.0	08.2	0025.4	0520	08.0	HTS
76030	0332.2	00.0	0351.8	0025	00.0	0454.8	00.0	0176.7	0040	00.0	4182.0	05.8	0049.2	0320	05.2	DEQ
76030	0706.3	00.1	0217.0	0050	00.3	0457.2	00.0	0149.3	0045	00.1	4578.5	05.9	0034.1	0500	06.0	HTS
76031	2042.0	00.7	2502.8	0100	00.9	2513.8	01.2	1309.8	0145	01.2	4521.8	03.6	0114.2	0240	03.2	DEQ
76031	2227.7	00.7	2430.3	0110	00.7	2560.8	01.6	1291.1	0130	01.7	3875.5	02.9	0132.5	0300	03.0	HTS
76032	1855.0	00.4	2502.8	0135	00.5	1355.6	00.3	0644.4	0100	00.4	2608.8	02.3	0051.7	0185	02.3	DEQ
76032	1744.6	00.4	2430.3	0130	00.5	2290.7	00.4	1330.1	0220	00.1	2167.7	02.0	0047.3	0150	02.0	HTS
76033	0629.4	00.1	1154.7	0055	00.1	0559.0	00.0	1032.1	0050	00.0	4491.9	06.0	0081.7	0375	05.7	DEQ
76033	0109.0	00.0	0572.7	0130	00.0	0328.1	00.0	0205.9	0170	00.1	8536.7	08.2	0024.1	0800	09.0	HTS
76034	0372.1	00.0	0616.9	0040	00.0	0292.4	00.0	0314.3	0040	00.0	3892.1	04.5	0036.6	0300	03.4	DEQ
76034	0448.2	00.1	0274.6	0040	00.2	0421.2	00.0	0249.5	0040	00.0	6627.5	06.4	0034.1	0570	05.7	HTS
76035	0215.8	00.0	1277.2	0030	00.0	0228.0	00.0	0969.6	0040	00.0	4501.9	06.8	0064.2	0340	07.0	DEQ
76035	0256.1	00.0	1339.2	0040	00.1	0193.1	00.0	0943.4	0045	00.1	4108.7	05.3	0089.2	0400	05.5	HTS
76036	0467.0	00.0	0651.9	0050	00.0	0356.7	00.0	0619.4	0050	00.0	0286.3	00.0	0244.2	0045	00.0	DEQ
76036	0214.1	00.0	0865.2	0030	00.0	0157.1	00.0	0552.8	0035	00.0	0124.1	00.0	0227.0	0030	00.0	HTS
76037	0240.3	00.0	0972.1	0040	00.0	0448.7	00.0	0369.3	0055	00.0	7260.8	07.2	0039.1	0560	07.2	DEQ
76037	0358.3	00.0	0870.0	0030	00.0	0451.3	00.0	0305.3	0040	00.0	5864.6	05.2	0020.5	0200	02.4	HTS
76038	0304.6	00.0	1407.3	0035	00.1	0307.7	00.0	0334.3	0040	00.1	3872.1	03.2	0046.7	0320	03.1	DEQ
76038	0301.1	00.0	0625.7	0035	00.1	0235.1	00.0	0292.1	0035	00.1	3728.9	04.8	0036.6	0400	05.0	HTS
76039	0460.9	00.0	0584.4	0040	00.0	0418.0	00.0	0601.9	0050	00.0	3592.2	02.5	0076.7	0320	02.4	DEQ
76039	0241.1	00.0	0567.6	0170	00.1	0244.1	00.0	0530.1	0210	00.1	3569.0	01.1	0059.1	0480	01.5	HTS
76040	0264.6	00.0	1059.6	0045	00.1	0206.6	00.0	0692.0	0045	00.1	2614.9	01.5	0166.7	0260	01.7	DEQ
76040	0205.1	00.0	0793.8	0050	00.0	0175.1	00.0	0552.4	0050	00.0	1420.5	00.8	0115.4	0190	01.1	HTS
76041	2020.5	01.9	2077.6	0125	02.1	2216.6	02.1	0464.4	0150	02.2	2262.6	04.2	0061.7	0130	04.3	DEQ
76041	2729.5	01.5	1974.9	0150	01.7	2830.4	02.1	0678.5	0200	02.0	4598.5	05.5	0084.0	0450	02.0	HTS
76042	0156.8	00.0	0606.9	0020	00.0	0413.8	00.0	0255.9	0050	00.0	3988.8	05.5	0031.5	0300	05.2	HTS
76043	0121.7	00.0	0660.6	0000	00.0	0277.8	00.0	0364.5	0020	00.0	3275.7	03.9	0121.9	0190	04.0	HTS
76044	0250.3	00.0	1444.3	0010	00.0	0583.8	00.3	0556.2	0040	00.1	3525.6	05.5	0080.6	0200	05.8	HTS
76045	0162.4	00.0	0706.7	0030	00.0	0198.2	00.0	0197.1	0050	00.0	2823.7	04.0	0061.2	0170	04.0	HTS
76046	1876.0	00.3	1800.6	0070	00.3	3718.9	03.8	0372.9	0200	04.0	9996.0	07.7	0036.3	0600	07.6	HTS
76047	0359.2	00.8	1621.5	0075	01.0	0446.1	00.1	0747.9	0040	00.1	5057.4	02.3	0146.1	0420	02.6	HTS
76048	0149.3	00.0	0624.2	0020	00.0	0149.3	00.0	0262.6	0020	00.0	1593.6	01.7	0070.9	0090	01.6	HTS

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 EUGENE

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
27001	1827.5	00.2	2502.8	0130	00.3	2932.5	00.3	1823.0	0240	00.4	9989.7	07.3	0071.7	0500	06.8	DEQ
27002	0875.4	00.2	2483.8	0170	00.3	1436.5	01.8	1188.6	0380	02.0	2775.0	09.2	0042.8	0890	09.4	DEQ
27003	1775.7	00.6	2502.8	0110	00.6	2558.9	00.5	1752.5	0170	00.6	4911.7	08.5	0064.2	0325	09.5	DEQ
27004	0688.7	00.1	1204.7	0040	00.2	0869.5	00.1	0589.4	0050	00.1	1157.5	01.5	0039.1	0095	01.4	DEQ
27005	2447.4	00.5	2502.8	0150	00.6	3292.3	00.4	2102.6	0240	00.4	4142.0	06.0	0096.7	0280	05.8	DEQ
27006	0783.7	00.3	2502.8	0065	00.3	1298.4	00.5	1512.4	0130	00.5	2288.0	04.4	0081.7	0120	04.0	DEQ
27007	1497.6	00.5	2502.8	0085	00.6	2186.9	01.2	1209.7	0150	01.2	4681.8	05.4	0044.2	0280	04.5	DEQ
27008	1782.9	00.2	2502.8	0130	00.1	2212.8	00.4	1677.4	0150	00.2	2232.7	03.6	0069.2	0120	03.2	DEQ
27009	2499.4	00.1	2502.8	0150	00.2	2487.2	00.1	2055.1	0160	00.2	4022.0	02.5	0099.2	0240	02.2	DEQ
27010	1898.9	00.1	2502.8	0080	00.2	2818.1	00.2	2397.5	0150	00.2	2932.5	03.3	0096.7	0130	02.8	DEQ
27011	3612.2	00.4	2502.8	0140	00.3	3742.2	00.5	1217.2	0175	00.5	3132.4	02.6	0076.7	0150	02.4	DEQ
27012	3022.4	00.2	2502.8	0140	00.3	3442.3	00.2	1439.8	0180	00.3	3452.3	00.5	0076.7	0200	00.5	DEQ
27013	2639.4	00.5	2395.3	0170	00.5	2219.7	00.1	0974.6	0160	00.2	2397.4	02.8	0069.2	0180	02.4	DEQ
27014	1916.3	00.3	2130.2	0120	00.3	1974.5	00.2	0807.0	0130	00.3	3662.2	04.8	0091.7	0230	04.4	DEQ
27015	3082.4	01.3	2187.7	0200	01.3	4951.7	05.0	0296.8	0350	04.7	6381.1	05.9	0074.2	0370	05.6	DEQ
27016	1919.4	00.2	2502.8	0120	00.3	1708.0	00.1	0372.1	0110	00.2	2786.5	04.7	0104.2	0160	04.4	DEQ
27017	1536.4	00.3	2502.8	0090	00.4	1622.2	00.5	1054.6	0110	00.4	2587.4	03.9	0071.7	0180	05.4	DEQ
27018	1055.3	00.2	2172.7	0060	00.3	1242.2	00.1	1014.6	0080	00.2	2392.7	01.9	0119.2	0560	02.5	DEQ
27019	1147.3	00.1	2502.8	0070	00.2	1407.7	00.1	1484.8	0100	00.1	1919.4	02.2	0144.2	0130	02.0	DEQ
27020	2130.8	00.3	2442.8	0140	00.4	2692.6	01.0	0679.5	0190	01.1	2142.8	01.9	0116.7	0150	02.0	DEQ
27021	2066.5	02.6	2217.7	0110	02.5	2962.5	00.9	2165.2	0190	00.8	2762.5	03.5	0129.2	0220	03.2	DEQ
27022	1830.5	00.3	2502.8	0100	00.4	2051.1	00.1	1539.9	0130	00.2	2893.8	02.7	0114.5	0200	02.6	DEQ
27023	1671.2	00.5	1454.8	0100	00.5	2415.8	00.1	1700.0	0170	00.0	2480.1	02.5	0081.7	0195	02.4	DEQ
27024	1128.9	00.2	2087.6	0050	00.2	1714.1	00.2	1289.8	0100	00.2	3222.4	02.5	0174.2	0220	02.2	DEQ
27025	1306.6	00.3	2502.8	0070	00.3	1478.2	00.1	0879.6	0110	00.2	2143.1	00.3	0069.2	0230	00.4	DEQ
27026	1772.3	00.2	2502.8	0070	00.3	1573.2	00.2	0862.0	0070	00.3	2048.1	00.5	0099.2	0140	00.6	DEQ
27027	1021.6	00.1	2082.6	0065	00.2	1894.9	00.1	2150.2	0150	00.1	2369.8	00.4	0184.2	0190	00.5	DEQ
27028	2829.4	02.4	2502.8	0160	02.1	3602.2	04.2	0922.1	0200	03.6	9360.1	08.9	0056.7	0310	07.8	DEQ
27029	2032.8	02.6	0629.4	0080	02.5	2512.6	01.1	0601.9	0110	01.1	8570.2	09.5	0041.7	0410	08.9	DEQ
27030	1539.5	00.1	2502.8	0080	00.2	1818.3	00.0	1632.4	0145	00.3	1888.8	02.1	0061.7	0180	02.0	DEQ
27031	0847.0	00.1	2357.8	0070	00.2	1306.6	00.1	1324.8	0100	00.2	0837.8	01.1	0066.7	0060	01.2	DEQ
27032	1420.0	01.3	1302.3	0060	01.2	1732.5	01.1	0714.5	0100	01.0	4511.8	08.3	0061.7	0290	07.0	DEQ
27033	0488.5	00.8	1517.4	0030	00.8	1484.3	02.2	0474.4	0100	01.8	3976.3	06.3	0039.1	0180	04.8	DEQ
27034	2087.9	00.1	2502.8	0140	00.2	4072.0	00.5	1254.7	0350	00.5	9989.7	07.2	0079.2	0830	05.4	DEQ
27035	0310.2	00.2	2502.8	0050	00.3	1588.5	01.8	1272.2	0110	01.7	1416.9	01.2	0129.2	0090	01.0	DEQ
27036	1453.7	00.1	2430.3	0090	00.2	2822.5	00.2	1712.5	0200	00.2	1220.8	02.2	0099.2	0670	02.0	DEQ
27037	1879.6	00.2	2502.8	0100	00.3	3442.3	00.2	2120.2	0250	00.3	3942.1	02.4	0146.7	0290	02.8	DEQ
27038	1996.0	00.2	2502.8	0130	00.3	2732.6	00.7	1157.2	0180	00.6	9989.7	07.1	0061.7	0640	06.8	DEQ
27039	0877.6	00.3	2012.6	0060	00.3	1652.8	01.5	0469.4	0120	01.0	4921.7	05.5	0034.1	0230	04.8	DEQ
27040	3162.4	00.9	1860.0	0130	00.5	4261.9	03.0	0399.3	0260	02.8	6631.0	07.5	0044.2	0780	06.8	DEQ
27041	0706.0	00.1	2322.8	0050	00.2	0981.8	00.1	1122.2	0080	00.2	1052.3	01.7	0069.2	0080	01.7	DEQ
37001	0890.4	00.1	2204.9	0030	00.2	1439.5	00.1	0849.9	0070	00.2	2928.0	03.7	0065.3	0180	03.6	DEQ
37002	1127.4	00.2	2502.8	0080	00.3	1430.5	00.1	2502.8	0110	00.1	1982.7	00.9	0249.3	0160	00.8	DEQ
37003	1981.7	00.6	2037.6	0135	00.7	2346.3	00.1	2502.8	0150	00.2	4072.0	06.2	0081.7	0270	05.8	DEQ
37004	0992.0	00.1	2502.8	0070	00.1	1442.4	00.1	1757.5	0110	00.1	2833.4	02.9	0121.7	0220	02.8	DEQ
37005	1987.8	00.3	2502.8	0150	00.4	1923.4	00.3	1114.7	0150	00.3	3602.2	01.1	0059.2	0380	00.5	DEQ
37006	0676.5	00.1	1112.2	0050	00.1	1105.4	00.2	0334.5	0080	00.2	0958.3	00.1	0096.7	0100	00.1	DEQ
37007	2337.1	01.0	2502.8	0135	01.0	2952.9	01.1	1504.9	0220	01.1	2735.4	03.3	0106.7	0160	03.0	DEQ
37008	2153.2	00.5	2502.8	0150	00.5	2361.6	00.2	0854.5	0170	00.3	4851.7	06.5	0059.2	0360	06.8	DEQ
37009	2116.5	00.2	2502.8	0130	00.3	2070.5	00.3	1177.2	0140	00.3	9339.9	05.3	0039.1	0560	04.7	DEQ
37010	1561.9	00.3	2502.8	0085	00.3	2487.2	00.3	2327.8	0150	00.8	2738.4	05.4	0089.2	0155	04.4	DEQ
37011	2180.8	00.4	2272.7	0135	00.5	1902.0	00.1	1122.2	0130	00.1	1442.4	00.6	0086.7	0090	00.6	DEQ
37012	3582.2	00.6	2502.8	0150	00.7	5961.3	04.2	0664.5	0350	03.9	6531.	08.7	0056.7	0375	08.0	DEQ
37013	0834.7	00.2	1740.0	0050	00.2	1845.5	01.1	1157.2	0120	01.0	2308.	05.0	0076.7	0180	04.8	DEQ
37014	0906.2	00.7	2502.8	0060	00.7	1120.7	00.7	1339.8	0100	00.7	2052.1	01.8	0029.1	0140	01.7	DEQ
37015	1778.4	01.1	2502.8	0110	01.2	1631.4	01.7	0579.4	0090	01.7	2633.3	05.6	0096.7	0160	05.0	DEQ
37016	2593.5	00.4	2502.8	0185	00.4	3102.4	00.2	0772.0	0255	00.4	6611.0	02.7	0074.2	0750	02.9	DEQ
37017	1570.1	00.4	1264.7	0080	00.5	1242.2	00.1	0515.9	0085	00.2	2798.8	01.3	0119.2	0210	01.4	DEQ
37018	1196.3	00.1	2502.8	0070	00.2	1490.4	00.1	2085.1	0105	00.2	2553.6	03.1	0121.7	0180	03.3	DEQ
37019	0405.8	00.2	1372.3	0035	00.2	0776.5	00.8	0356.9	0065	00.8	1040.0	00.8	0099.2	0090	00.9	DEQ
37020	2032.8	00.7	2255.2	0110	00.6	2942.5	01.3	1832.5	0200	01.3	3602.2	04.5	0144.2	0265	04.0	DEQ
37021	1907.1	00.1	2502.8	0100	00.2	2782.5	00.6	1689.9	0175	00.7	6181.2	07.7	0081.7	0330	07.2	DEQ
37022	2388.2	00.8	2502.8	0115	00.9	4142.0	05.4	0511.9	0280	04.8	3382.3	02.6	0096.7	0150	02.4	DEQ
37023	0482.4	01.2	0359.3	0030	01.2	0755.1	02.3	0071.7	0060	02.2	2492.6	04.1	0036.6	0150	03.6	DEQ
37024	1076.8	00.1	1342.3	0055	00.2	5421.5	00.1	2330.3	0750	00.2	4311.9	05.5	0089.2	0220	04.8	DEQ
37025	1760.1	00.2	1597.4	0080	00.3	2743.6	01.0	1424.8	0190	01.0	2688.5	03.4	0084.2	0130	03.1	DEQ
37026	0470.1	00.2	1004.6	0035	00.3	0908.3	01.4	0181.7	0055	01.4	0905.2	02.2	0054.2	0065	02.1	DEQ
37027	0782.6	00.2	0947.1	0045	00.2	1386.2	00.8	0249.3	0100	00.8	1288.2	02.0	0056.7	0110	01.8	DEQ
37028	0586.5	00.8	1700.0	0040	00.9	1499.6	02.0	0634.4	0100	02.0	1778.4	03.7	0051.7	0100	03.8	DEQ
37029	1714.1	00.2	1089.7	0110	00.2	3012.4	01.3	1177.2	0220	01.3	1992.8	01.2	0096.7	0130	01.1	DEQ
37030	3012.4	00.2	1825.0	0280	00.2	6661.0	00.1	1392.3	0820	00.2	2522.6	00.2	0104.2	0460	00.2	DEQ
37031	0620.2	00.3	1449.8	0045	00.3	0926.6	01.2	0331.8	0065	01.2	0969.5	01.8	0081.7	0080	01.9	DEQ
37032	0693.8	00.2	0889.6	0050	00.3	1407.7	01.4	0499.4	0070	01.6	1021.6	00.7	0171.7	0060	00.7	DEQ
37033	0644.8	00.2	1194.7	0040	00.3	0611.0	00.2	0461.9	0050	00.2	2541.4	03.6	0071.7	0130	03.4	DEQ
37034	2152.5	00.7	2502.8	0145	00.8	2716.0	01.6	0957.1	0220	02.0	6711.0	07.7	0049.2	0420	07.4	DEQ
37035	2231.9	01.2	2312.7	0160	01.2	1873.4	00.7	0802.0	0130	00.8	3332.3	04.4	0084.2	0240	04.2	DEQ
37036	0764.2	00.1	1837.5	0060	00.2	1309.6	00.1	1589.9	0110	00.1	1499.6	02.0	0124.2	0125	01.9	DEQ
37037	0883.7	01.4	0904.6	0060	01.4	1490.4	03.0	0106.7	0050	02.9	2922.5	05.5	0046.7	0160	05.6	DEQ
37038	3512.2	02.3	2167.7	0170	02.1	4441.9	04.4	0669.5	0230	03.8	9989.7	09.4	0031.6	0680	08.8	DEQ
47001	1433.1	00.2	2502.8	0090	00.2	2752.5	03.9	0344.3	0210	04.4	4511.8	05.9	0034.1	0300	07.0	DEQ
47002	1448.5	00.4	2502.8	0025	00.0	2934.5	01.5	1720.0	0030	00.6	4781.7	08.7	0061.7	0060	05.5	DEQ
47003	1191.2	00.2	2502.8	0010	00.1	1810.1	00.5	1760.0	0060	00.3	3012.4	04.5	0051.7	0130	03.4	DEQ
47004	1145.2	00.1	2502.8	0070	00.1	2560.7	00.8	2247.7	0160	00.8	4591.8	08.2	0061.7	0260	07.6	DEQ
47005	1776.4	00.1	1767.5	0090	00.2	2266.6	00.2	2180.2	0150	00.2	2315.6	00.9	0096.7	0175	00.8	DEQ
47006	2342.9	00.2	1494.9	0120	00.2	2925.3	00.5	1634.9	0220	00.5	2557.7	02.8	0096.7	0160	02.4	DEQ
47007	2615.9	00.4	2502.8	0150	00.4	3332.3	01.8	0982.1	0210	01.8	3332.3	02.1	0099.2	0190	01.8	DEQ
47008	1200.4	00.1	2502.8	0080	00.1	2223.7	00.9	1149.7	0150	00.8	1396.5	00.1	0109.2	0110	00.1	DEQ
47009	0742.8	00.4	1289.8	0055	00.5	1159.5	01.6	0351.8	0100	01.5	1931.6	02.3	0044.2	0130	02.4	DEQ
47010	2746.7	01.6	0907.1	0170	01.6	3492.3	03.6	0154.2	0250	03.5	3102.4	03.5	0069.2	0220	03.4	DEQ
47011	1337.2	00.1	2502.8	0070	00.2	2314.7	00.1	2502.8	0155	00.2	2691.5	04.7	0079.2	0180	04.4	DEQ

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1972 - 74 EUGENE

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
47012	1910.2	00.3	2502.8	0110	00.3	3502.2	01.5	1462.3	0210	01.5	6641.0	08.3	0054.2	0260	08.0	DEQ
47013	1345.6	00.9	2330.3	0080	01.2	1147.3	01.5	0737.0	0050	01.5	2912.5	06.2	0076.7	0180	06.4	DEQ
47014	0580.5	00.2	1472.3	0050	00.3	1753.9	00.6	0496.9	0125	00.6	2250.3	00.3	0046.7	0180	00.3	DEQ
47015	1318.8	00.3	2472.8	0060	00.4	0859.2	00.1	1037.1	0060	00.2	1279.0	00.2	0276.8	0095	00.1	DEQ
47016	0736.7	00.2	1247.2	0055	00.2	0678.5	00.1	0364.3	0060	00.1	1269.8	00.1	0234.2	0110	00.1	DEQ
47017	4761.8	00.3	2322.8	0400	00.4	2442.7	00.5	1499.9	0230	00.6	1643.0	02.5	0076.7	0125	02.5	DEQ
47018	0969.5	00.9	1304.8	0060	00.9	1413.8	02.7	0144.2	0090	03.0	1285.1	03.3	0049.2	0080	03.4	DEQ
47019	1660.4	00.5	2427.8	0070	00.5	1698.8	00.2	1124.7	0130	00.3	1138.1	00.6	0134.2	0070	00.6	DEQ
47020	1456.7	00.1	2075.1	0055	00.2	2146.1	00.1	1112.2	0140	00.2	5821.3	02.5	0074.2	0180	02.3	DEQ
47021	2057.3	00.1	2087.6	0140	00.2	3102.4	01.2	0314.3	0250	01.4	3062.4	03.8	0071.7	0190	03.0	DEQ
47022	1652.8	00.2	1905.1	0100	00.2	3452.3	01.5	1042.1	0220	01.5	6221.2	08.8	0054.2	0250	08.8	DEQ
47023	1891.8	00.3	2097.6	0120	00.3	3242.3	01.2	1147.2	0220	00.6	6301.3	07.8	0061.7	0290	07.0	DEQ
47024	0522.2	00.1	0854.3	0040	00.1	1217.7	00.1	0934.6	0090	00.2	1036.9	00.2	0089.2	0070	00.2	DEQ
47025	1953.1	00.7	2247.7	0090	00.8	3552.2	02.7	0829.5	0210	02.8	6161.2	00.2	0061.7	0450	00.3	DEQ
47026	0638.6	01.0	0330.8	0045	01.0	1383.2	01.8	0311.8	0100	01.8	1171.8	02.1	0069.2	0075	02.1	DEQ
47027	0399.6	00.1	0902.1	0030	00.2	0727.5	00.6	0259.3	0050	00.7	1000.2	01.4	0081.7	0080	01.8	DEQ
47028	1695.7	00.1	2502.8	0120	00.2	2035.8	00.4	1965.1	0160	00.5	1058.4	00.4	0176.7	0080	00.4	DEQ
47029	1407.7	00.1	0994.6	0070	00.2	0957.3	00.1	0336.6	0050	00.2	1849.9	00.5	0076.7	0110	00.4	DEQ
47030	1242.2	00.3	1677.4	0060	00.4	2442.7	00.8	1157.2	0180	00.7	8160.4	07.8	0046.7	0440	07.8	DEQ
47031	1793.8	00.2	2502.8	0130	00.3	2808.0	01.3	1667.4	0230	01.3	2758.9	01.9	0131.7	0200	01.6	DEQ
47032	3432.3	04.9	0752.0	0190	04.7	4481.9	07.2	0131.7	0280	07.2	4212.0	06.7	0041.7	0200	06.6	DEQ

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 EUGENE

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
58002	0149.1	00.0	0710.4	0025	00.0	0176.1	00.0	0753.2	0020	00.0	2531.9	05.0	0042.8	0180	05.0	DEQ
58003	0599.3	00.3	1168.7	0050	00.4	1481.6	00.5	1206.1	0120	00.5	2793.0	05.9	0030.4	0240	05.2	DEQ
58004	0713.3	00.1	0531.0	0020	00.0	0878.4	00.1	0653.6	0025	00.0	0485.2	00.2	0025.4	0020	00.1	DEQ
58005	0344.2	00.0	1103.0	0010	00.0	0221.2	00.0	2160.9	0020	00.0	1169.5	01.3	0125.1	0080	01.2	DEQ
58006	0734.3	00.1	2502.8	0035	00.1	1151.5	00.1	2192.7	0065	00.1	2030.7	02.5	0106.7	0140	02.2	DEQ
58007	0256.7	00.1	0601.9	0010	00.0	1105.4	00.6	0639.4	0090	00.5	1117.7	00.7	0146.7	0110	00.8	DEQ
58008	0504.9	00.1	1922.6	0030	00.1	0566.2	00.1	0939.6	0025	00.1	1325.7	00.9	0124.2	0065	00.8	DEQ
58009	0388.2	00.0	1514.9	0030	00.0	0079.0	00.0	2067.6	0030	00.0	0048.4	00.0	0364.3	0030	00.0	DEQ
58010	0204.6	00.1	0644.4	0030	00.1	0360.9	01.0	0139.2	0040	01.0	0382.3	00.8	0039.1	0040	00.8	DEQ
58011	6101.2	10.7	0156.7	0480	09.2	5351.5	07.8	0121.7	0400	07.0	8740.2	07.1	0034.1	0550	06.0	DEQ
58012	0633.6	00.1	2025.1	0065	00.0	0704.0	00.0	1725.0	0090	00.0	0436.8	00.0	0114.2	0060	00.0	DEQ
58013	0992.0	00.6	1399.8	0070	00.6	1770.3	01.0	1389.8	0140	01.0	1421.0	01.8	0094.2	0110	01.6	DEQ
58014	0670.3	00.2	1619.9	0040	00.2	0520.2	00.1	0672.0	0040	00.1	0688.7	00.0	0146.7	0060	00.0	DEQ
58015	2294.2	00.6	2502.8	0130	00.6	2615.5	00.6	0742.0	0210	00.7	3232.4	01.8	0091.7	0290	01.8	DEQ
58016	1307.6	00.3	2500.3	0095	00.4	1273.9	00.2	0834.5	0100	00.2	0676.5	01.0	0059.2	0090	00.9	DEQ
58017	0455.9	00.1	1464.8	0040	00.2	0437.5	00.2	0639.4	0030	00.2	2839.5	00.8	0126.7	0140	00.8	DEQ
58018	1212.6	00.4	2502.8	0080	00.5	0869.5	00.4	0491.9	0055	00.8	1227.9	01.6	0076.7	0090	01.5	DEQ
58019	2355.2	00.1	1762.5	0130	00.2	2692.6	00.2	1637.3	0210	00.2	1523.0	00.6	0129.2	0110	00.6	DEQ
58020	0664.2	00.2	1459.8	0035	00.2	0413.0	00.4	0444.3	0040	00.4	0906.2	00.7	0041.7	0090	00.6	DEQ
58021	0394.6	00.1	0812.0	0030	00.1	0553.9	00.1	0176.7	0055	00.1	1120.7	01.3	0059.2	0075	01.2	DEQ
58022	1322.7	00.2	2502.8	0075	00.2	0841.9	00.1	1312.1	0065	00.1	0970.6	00.4	0066.7	0090	00.4	DEQ
58023	1502.7	00.1	1652.4	0110	00.1	1799.9	00.3	1244.7	0135	00.4	4361.9	04.4	0076.7	0305	03.9	DEQ
58024	0783.7	00.3	0662.0	0050	00.3	0982.8	00.6	0355.8	0070	00.7	3142.4	04.5	0084.2	0200	04.8	DEQ
58025	0247.5	00.0	1207.2	0030	00.1	0186.2	00.0	1422.3	0035	00.1	1387.3	02.6	0044.2	0130	02.4	DEQ
58026	2140.0	02.6	0857.0	0170	02.8	3462.3	03.9	0539.4	0250	04.2	1123.2	00.5	0049.2	0100	00.7	DEQ
58027	0240.3	00.0	2332.8	0040	00.1	1882.6	02.1	0884.6	0140	02.8	3762.1	06.0	0051.7	0240	06.2	DEQ
58028	0246.4	00.0	1224.7	0035	00.0	0185.1	00.1	0274.3	0035	00.0	0120.8	00.0	0084.2	0035	00.0	DEQ
58029	0963.4	00.6	0524.4	0080	00.7	1358.7	00.1	0932.1	0120	00.1	4571.8	02.9	0076.7	0360	02.8	DEQ
58030	0206.6	00.0	1614.9	0040	00.1	1309.6	00.8	0924.6	0110	00.8	2366.7	02.8	0099.2	0140	02.8	DEQ
58031	0687.6	00.3	0581.9	0045	00.1	2360.6	03.1	0144.2	0150	03.1	3852.1	07.0	0049.2	0270	06.2	DEQ
58032	0733.6	00.1	2202.7	0050	00.0	0892.9	00.5	1302.1	0075	00.2	1223.9	00.2	0079.2	0120	00.1	DEQ
58033	0954.2	00.1	2332.6	0040	00.2	0776.5	00.2	0937.1	0045	00.3	1018.6	01.4	0069.2	0085	01.5	DEQ
58034	0491.5	00.1	2502.8	0065	00.2	0994.1	00.7	0817.0	0120	01.2	3562.2	04.0	0084.2	0280	03.9	DEQ
68001	0437.2	00.0	0508.6	0020	00.0	0944.4	00.0	0421.5	0100	00.0	1115.4	00.1	0145.0	0060	00.1	DEQ
68002	0719.3	00.1	1901.0	0040	00.0	1928.7	00.1	1500.0	0100	00.0	1622.6	00.2	0150.0	0120	00.1	DEQ
68003	0461.2	00.0	1213.5	0040	00.0	1007.4	00.0	0635.7	0050	00.0	3632.2	04.5	0037.9	0280	03.9	DEQ
68004	0119.1	00.0	1460.1	0010	00.0	0116.1	00.0	0854.9	0010	00.0	1403.5	02.5	0045.3	0070	02.3	DEQ
68005	0491.2	00.1	2046.6	0015	00.1	0917.4	00.1	0630.7	0040	00.1	0914.4	00.1	0189.8	0060	00.2	DEQ
68006	0653.3	00.0	2483.8	0040	00.1	0929.4	00.0	2483.8	0055	00.1	3042.2	05.7	0115.1	0210	03.4	DEQ
68007	0777.6	00.1	0407.1	0010	00.1	0624.4	00.0	1377.2	0010	00.1	0345.6	00.0	0126.7	0010	00.1	DEQ
68008	0397.6	00.1	2442.8	0010	00.0	0633.6	00.1	1634.9	0010	00.0	0321.0	00.1	0114.2	0010	00.0	DEQ
68009	0606.0	00.0	0839.5	0060	00.0	0848.0	00.0	0435.8	0095	00.0	0894.0	00.0	0476.9	0110	00.0	DEQ
68010	0382.3	00.0	1815.0	0050	00.1	2615.5	01.7	1024.5	0190	01.7	3902.1	02.8	0141.7	0340	03.4	DEQ
68011	0572.3	00.0	1107.2	0050	00.1	0425.2	00.0	0405.8	0035	00.1	0183.2	00.0	0036.6	0020	00.1	DEQ
68012	0504.9	00.0	2502.8	0055	00.0	0541.6	00.0	2232.7	0070	00.0	0480.4	00.0	0114.2	0065	00.0	DEQ
68013	2686.3	01.1	2502.8	0160	01.2	2750.7	01.4	1174.7	0190	01.4	3882.1	08.6	0074.2	0200	04.9	DEQ
68014	0235.3	00.0	0852.0	0020	00.0	0296.5	00.0	0722.0	0035	00.0	0422.2	00.0	0099.2	0050	00.0	DEQ
68015	0501.8	00.0	1324.8	0050	00.0	0474.2	00.0	0649.4	0065	00.0	0360.9	00.0	0121.7	0055	00.0	DEQ
68016	0284.3	00.2	1044.6	0030	00.2	0507.9	00.2	0479.4	0030	00.2	0645.8	00.1	0084.2	0040	00.1	DEQ
68017	0321.0	00.2	1339.8	0030	00.2	0376.2	00.1	0595.9	0035	00.2	0354.6	00.2	0056.7	0040	00.2	DEQ
68018	0918.5	00.1	1692.4	0055	00.2	0740.8	00.1	0581.9	0050	00.1	0774.5	00.1	0059.2	0105	00.1	DEQ
68019	1586.4	00.1	2502.8	0110	00.1	1319.9	00.1	1114.7	0090	00.1	0606.0	00.2	0159.2	0050	00.2	DEQ
68020	1154.4	00.3	2152.7	0065	00.3	1053.3	00.5	0849.5	0050	00.5	1430.2	04.2	0054.2	0060	03.6	DEQ
68021	1277.0	00.1	2502.8	0070	00.2	0829.6	00.8	0719.5	0055	00.7	1390.3	00.4	0131.7	0110	00.6	DEQ
68022	0247.5	00.0	0404.3	0025	00.1	0302.7	00.0	0336.8	0040	00.1	0259.8	00.1	0059.2	0030	00.1	DEQ
68023	1160.5	00.2	1872.5	0075	00.1	1908.1	00.5	0857.0	0165	00.5	0722.4	00.5	0056.7	0070	00.5	DEQ
68024	1203.4	00.2	2427.8	0095	00.2	2511.7	01.3	1067.1	0220	01.3	1656.9	00.8	0051.7	0130	00.8	DEQ
68025	0198.5	00.0	1207.2	0030	00.1	0149.5	00.0	0364.3	0030	00.1	1393.4	02.6	0049.2	0125	02.4	DEQ
68026	0424.1	00.0	0511.9	0045	00.0	0491.5	00.0	1292.3	0060	00.0	2409.6	03.5	0111.7	0235	03.6	DEQ
68027	0657.0	00.1	1304.8	0045	00.1	0488.5	00.2	0421.8	0055	00.3	1726.4	01.7	0054.2	0160	01.5	DEQ
68028	1413.8	00.2	1912.6	0100	00.2	1398.5	00.4	0837.0	0105	00.5	0543.6	00.7	0061.7	0055	00.7	DEQ
68029	0234.2	00.0	0692.0	0035	00.1	0261.7	00.0	0529.4	0045	00.1	0237.2	00.0	0251.8	0055	00.1	DEQ
68030	1159.5	02.0	1314.8	0065	02.1	1168.7	01.5	0759.5	0090	01.5	0476.2	01.1	0061.7	0030	01.0	DEQ
68031	0179.0	00.0	0594.4	0025	00.1	0310.8	00.0	1895.0	0035	00.1	3462.3	07.1	0081.7	0250	06.4	DEQ
68032	0715.2	01.1	1459.8	0050	01.0	0911.3	01.2	0631.9	0070	01.2	1285.1	02.2	0054.2	0090	02.4	DEQ
68033	1640.6	00.8	1259.7	0120	00.9	0203.5	00.0	0689.5	0030	00.1	0945.0	00.3	0086.7	0110	00.2	DEQ
68034	2348.4	01.5	2075.1	0120	01.4	0653.9	00.0	1582.4	0035	00.0	9989.7	08.4	0029.1	0310	07.2	DEQ
68035	0445.6	00.0	2502.6	0045	00.0	2051.1	01.0	2167.7	0175	01.0	3842.1	06.1	0081.7	0265	05.8	DEQ
68036	1720.2	00.1	2502.8	0115	00.2	1438.3	00.2	0979.6	0100	00.2	0850.0	00.5	0056.7	0080	00.5	DEQ
68037	1131.9	00.2	2502.8	0080	00.2	0506.9	00.0	2502.8	0060	00.0	5641.4	02.4	0051.7	0385	02.4	DEQ
68038	1392.4	01.1	2502.8	0090	01.3	2235.0	02.5	1454.8	0150	02.5	3212.4	04.5	0089.2	0180	04.5	DEQ
68039	0892.9	00.1	2012.6	0055	00.2	1095.2	00.5	0919.6	0075	00.6	0424.1	00.6	0069.2	0040	00.7	DEQ
68040	1030.8	00.5	1277.2	0070	00.6	0255.6	00.0	0365.8	0035	00.0	0148.4	00.0	0236.7	0030	00.0	DEQ
68041	0574.3	00.1	0797.0	0060	00.0	0464.0	00.0	0401.8	0060	00.0	0641.7	00.0	0034.1	0050	00.0	DEQ
68042	0172.9	00.0	0907.1	0020	00.1	0117.7	00.0	0266.8	0020	00.1	0065.6	00.0	0414.3	0020	00.1	DEQ
68043	1597.7	02.0	0396.8	0130	01.8	1778.4	01.5	0131.7	0135	01.6	2057.3	01.0	0236.7	0160	01.0	DEQ
78001	0308.2	00.0	2405.3	0035	00.0	1649.6	00.7	1357.3	0150	00.7	0239.2	00.0	0161.7	0020	00.0	DEQ
78002	0086.1	00.0	0539.4	0015	00.0	0131.1	00.0	0654.5	0015	00.0	0053.1	00.0	0126.7	0010	00.0	DEQ
78003	0125.0	00.0	0389.3	0020	00.1	0204.6	00.0	0737.0	0020	00.1	3492.3	06.6	0051.7	0240	06.0	DEQ
78004	0591.3	00.0	0239.2	0020	00.1	0161.7	00.0	1619.9	0025	00.1	1237.1	01.8	0051.7	0100	01.7	DEQ
78005	1522.1	00.4	2502.8	0110	00.5	1280.0	00.2	1547.4	0090	00.2	1313.7	00.2	0101.7	0110	00.2	DEQ
78006	0860.3	00.0	2502.8	0060	00.0	0912.4	00.0	2502.8	0070	00.0	3672.2	06.9	0116.7	0285	05.2	DEQ
78007	1920.4	00.3	2502.8	0100	00.4	1868.3	00.2	0585.9	0100	00.3	1987.8	01.3	0084.2	0100	01.2	DEQ
78008	2432.0	00.9	2420.3	0130	00.9	2530.1	01.3	0687.0	0160	01.3	1280.0	00.9	0076.7	0070	00.9	DEQ
78009	1914.3	00.7	0506.9	0170	00.7	2272.7	00.4	0235.7	0210	00.4	8190.4	07.7	0031.6	0670	07.4	DEQ
78010	0170.9	00.1	0206.7	0030	00.2	0128.0	00.0	0201.7	0025	00.1	1270.8	00.2	0461.9	0180	00.4	DEQ
78011	0186.2	00.0	0519.4	0040	00.0	0137.2	00.0	0311.8	0030	00.0	0137.2	00.0	0266.8	0030	00.0	DEQ
78012	0200.5	00.5	0987.1	0025	00.6	0179.0	00.5	0246.7	0030	00.6	0703.0	00.7	0089.2	0060	00.7	DEQ
78013	0532.5	00.0	0679.5	0055	00.0	0955.3	00.3	0135.7	0110	00.5	3402.3	03.1	0692.0	0255	02.7	DEQ
78014	0219.9	00.4	0972.1	0025	00.4	0158.7	00.4	0276.8	0020	00.4	0569.2	00.7	0054.2	0045	00.7	DEQ

APPENDIX C - FEDERAL THREE-MODE TEST RESULTS

1975 - 77 EUGENE

EPA NO	---HI (LAB)---			HI (GAR)		---LO (LAB)---			LO (GAR)		--IDLE (LAB)--			IDLE(GAR)		
	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	HC	CO	NOX	HC	CO	LAB
78015	0430.3	00.0	0819.5	0070	00.1	0421.1	00.0	0384.3	0080	00.1	0326.1	00.0	0314.3	0060	00.1	DEQ
78016	0123.9	00.0	0589.4	0030	00.0	0123.9	00.0	0319.3	0040	00.0	0203.5	00.0	0249.3	0040	00.0	DEQ
78017	0369.0	00.0	1755.0	0035	00.0	0145.3	00.0	0757.0	0030	00.0	0151.4	00.0	0184.2	0030	00.0	DEQ
78018	1061.5	00.6	0249.3	0080	00.4	0381.2	00.0	0129.2	0040	00.0	6791.0	07.4	0019.1	0500	07.2	DEQ
78019	0221.9	00.0	1017.1	0040	00.1	0163.7	00.0	0599.4	0035	00.1	0123.9	00.0	0219.2	0030	00.1	DEQ
78020	0240.5	00.0	0579.4	0040	00.1	1003.2	00.5	0499.4	0110	00.6	4012.0	05.3	0021.6	0320	05.3	DEQ
78021	0335.3	00.0	1074.7	0050	00.0	0267.9	00.0	0897.1	0055	00.0	0212.7	00.0	0259.3	0040	00.0	DEQ
78022	0260.1	00.0	2457.6	0050	00.0	0179.0	00.0	0621.9	0040	00.0	0102.4	00.0	0389.3	0030	00.0	DEQ
78023	0326.1	00.0	1079.7	0050	00.0	0240.3	00.0	0884.6	0050	00.0	0194.3	00.0	0364.3	0030	00.0	DEQ
78024	0172.9	00.0	1052.1	0040	00.0	0157.6	00.0	0862.0	0040	00.0	3502.2	02.4	0091.7	0250	02.3	DEQ
78025	0197.4	00.0	0902.1	0030	00.0	0142.2	00.0	0294.3	0030	00.0	0111.6	00.0	0219.2	0020	00.0	DEQ
78026	0770.4	00.0	1534.9	0050	00.1	0629.4	00.0	0694.5	0080	00.0	6631.0	06.7	0029.1	0470	06.0	DEQ
78027	0179.0	00.0	0757.0	0030	00.0	0160.6	00.0	0296.8	0035	00.0	0102.4	00.0	0206.7	0030	00.0	DEQ
78028	1150.5	00.4	1975.1	0080	00.5	0957.3	00.6	0574.4	0080	00.7	1027.8	00.3	0064.2	0090	00.3	DEQ
78029	0603.1	00.0	0829.5	0050	00.0	1043.1	00.0	0394.3	0075	00.0	5991.3	08.4	0034.1	0410	07.6	DEQ
78030	0185.1	00.0	0727.0	0030	00.1	0200.5	00.0	0209.2	0035	00.1	0130.0	00.0	0331.8	0030	00.1	DEQ
78031	0231.1	00.0	0602.0	0030	00.0	0344.5	00.0	1327.3	0050	00.0	4032.0	07.3	0074.2	0300	06.4	DEQ

APPENDIX D - FEDERAL SHORT CYCLE TEST RESULTS

Legend

HC - Hydrocarbon Emissions in Grams per Mile

CO - Carbon Monoxide Emission in Grams per Mile

CO_2 - Carbon Dioxide Emissions in Grams per Mile

NO_x - Oxides of Nitrogen (uncorrected) Emissions in Grams per Mile

MPG - Miles per Gallon Calculated by the Carbon Balance Method

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 PORTLAND PASS

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
23003	771004	001.57	007.53	0304.2	04.41	27.6	770922	001.91	011.95	0326.2	04.27	25.3
23004	770927	001.74	016.43	0559.7	02.29	15.0	770923	001.80	012.51	0569.8	02.63	14.9
23005	771103	001.43	006.99	0383.2	01.85	22.2	771028	001.73	011.00	0402.5	01.94	20.9
23007	771025	004.11	004.10	0631.9	04.38	13.6	771020	001.44	014.68	0678.0	06.09	12.6
23008	771026	001.78	012.88	0277.8	04.42	29.2	771020	001.65	007.02	0279.0	04.72	30.0
23009	771028	003.23	008.48	0309.1	02.46	26.7	771025	001.95	007.10	0312.0	02.79	26.9
23010	771108	001.75	015.67	0329.1	05.18	24.7	771107	001.85	027.13	0363.8	05.33	21.5
23011	771108	002.44	006.68	0334.0	04.36	25.2	771107	001.99	018.09	0359.6	04.71	22.5
23012	771110	002.35	014.74	0464.0	04.93	17.9	771115	002.82	024.50	0544.3	06.61	15.0
23013	771114	002.42	004.89	0450.6	04.80	19.0	771109	003.10	032.57	0437.9	02.99	17.8
23014	771129	001.78	051.63	0548.8	01.54	14.0	771115	002.07	030.44	0532.8	02.51	15.1
23015	780105	003.43	006.78	0396.5	04.27	21.2	771205	003.95	005.32	0459.3	05.57	18.5
23016	771215	003.44	054.37	0489.1	06.08	15.1	771213	003.61	055.59	0538.6	06.29	13.9
23017	771219	001.90	019.86	0272.7	02.29	28.6	771220	002.12	023.22	0287.8	02.93	26.8
23018	771228	001.00	003.64	0475.8	01.87	18.3	771227	000.77	003.60	0590.1	02.42	14.8
23019	780221	004.63	042.46	0286.0	01.63	24.1	780217	003.79	037.81	0293.9	01.95	24.3
23021	780124	002.85	012.26	0554.7	03.28	15.2	780120	003.94	023.15	0606.7	04.06	13.5
23022	780128	002.04	023.50	0350.4	01.22	22.5	780123	003.65	027.83	0391.8	01.86	19.8
23023	780209	001.64	031.99	0285.7	01.19	26.0	780201	000.69	009.43	0356.6	01.92	23.7
23024	780208	002.65	012.05	0481.0	03.21	17.4	780203	001.98	023.00	0565.0	03.85	14.6
23025	780216	002.05	028.20	0312.0	03.68	24.4	780215	002.53	040.16	0355.7	04.79	20.8
23026	780217	004.34	017.74	0229.5	02.07	32.7	780216	003.72	020.58	0263.7	02.89	28.8
23027	780222	001.71	008.61	0279.6	02.53	29.7	780221	001.76	011.51	0292.2	02.77	28.1
23028	780228	002.92	006.40	0280.5	04.84	29.6	780221	003.74	016.19	0310.1	05.02	25.5
23029	780303	002.69	023.92	0325.9	02.62	23.8	780223	003.18	019.61	0371.9	02.46	21.5
23030	780227	001.39	010.36	0535.3	06.02	16.0	780222	001.66	017.51	0574.8	06.92	14.6
23031	780301	002.75	007.84	0566.0	08.07	15.1	780224	002.63	022.99	0544.3	06.73	15.1
23032	780228	001.51	021.78	0517.4	02.12	15.9	780224	001.57	018.32	0594.8	03.48	14.1
23033	780302	001.52	005.04	0561.4	04.59	15.4	780225	001.70	007.49	0668.3	06.57	12.9
23034	780302	001.32	009.70	0648.4	03.95	13.3	780228	001.49	009.65	0683.9	04.62	12.6
23035	780303	002.51	007.84	0478.4	03.34	17.8	780301	002.59	006.15	0526.9	04.41	16.3
23036	780306	003.14	028.19	0491.5	04.11	16.2	780302	002.51	012.64	0523.5	05.40	16.1
23037	780306	001.57	015.81	0327.2	02.48	24.8	780303	001.54	012.25	0322.1	02.55	25.6
23038	780307	001.89	019.53	0550.9	05.16	15.1	780306	002.06	023.30	0606.2	06.62	13.7
23039	780308	002.24	010.44	0290.4	03.19	28.2	780305	001.87	010.25	0329.0	03.94	25.3
23040	780309	001.59	013.40	0258.0	04.57	31.2	780307	001.73	011.89	0280.2	04.82	29.1
23041	780309	003.37	008.69	0518.8	03.57	16.3	780308	002.65	009.26	0566.7	04.66	15.0
23042	780321	001.39	015.93	0555.2	02.29	15.2	780322	001.18	007.10	0627.5	02.94	13.8
23043	780328	004.68	061.64	0674.0	02.69	11.3	780327	003.90	024.68	0735.8	05.52	11.3
23044	780407	001.26	011.06	0343.5	04.83	24.3	780406	002.11	048.08	0342.3	03.57	20.9
23045	780411	001.32	028.34	0449.8	02.09	17.8	780410	002.33	084.76	0398.8	00.98	16.4
23046	780413	001.94	008.00	0276.6	03.37	30.0	780411	001.71	013.97	0260.5	04.14	28.8
23047	780414	003.34	021.32	0461.5	03.08	17.5	780412	003.96	031.25	0450.8	03.22	17.3
23048	780417	001.37	017.64	0716.8	05.53	11.8	780413	001.51	021.42	0680.0	05.47	12.3
33003	771007	002.00	017.89	0550.1	02.74	15.2	771005	002.28	014.54	0559.3	03.45	15.1
33004	771001	002.03	005.49	0551.2	03.52	15.7	770923	002.10	006.82	0533.4	04.69	16.1
33005	771012	002.09	020.83	0440.4	01.51	18.5	771006	001.63	032.41	0409.5	01.73	19.1
33006	771015	001.84	041.93	0551.8	01.09	14.2	771014	001.95	030.32	0526.7	01.49	15.3
33007	771102	001.26	030.35	0566.8	01.98	14.3	771027	001.79	033.27	0582.4	02.17	13.9
33008	771102	002.21	015.60	0509.5	03.04	16.4	771027	002.41	012.27	0529.6	04.43	15.9
33009	771109	003.62	010.13	0450.1	02.09	18.6	771104	001.49	017.49	0265.1	02.15	29.8
33010	771122	002.99	041.67	0493.9	01.09	15.6	771121	002.20	014.71	0551.6	01.69	15.3
33011	771219	000.58	003.68	0393.3	01.91	22.1	771214	000.77	004.77	0395.8	02.19	21.9
33012	771220	002.09	014.04	0581.1	05.60	14.5	771215	002.11	007.49	0598.1	06.59	14.4
33013	771229	002.15	027.62	0409.4	01.12	19.3	771228	003.20	037.12	0427.6	01.68	17.9
33014	780104	005.53	025.60	0494.3	02.12	16.1	771230	005.24	030.75	0600.3	04.03	13.3
33015	780104	003.80	078.22	0226.5	00.46	24.5	771229	003.20	072.81	0266.1	00.92	22.7
33016	780111	001.25	008.92	0352.7	04.72	23.9	780110	001.43	012.77	0366.1	05.61	22.7
33017	780117	002.62	027.82	0307.8	01.82	24.6	780110	002.06	027.03	0294.7	02.84	25.8
33018	780117	001.28	054.90	0407.4	00.55	17.8	780116	001.71	065.64	0438.8	01.50	16.2
33019	780120	002.73	017.81	0573.7	01.70	14.5	780119	003.03	021.90	0491.3	03.57	16.6
33020	780126	001.12	036.34	0568.3	03.03	14.1	780120	001.72	042.27	0625.9	03.29	12.7
33021	780127	002.38	053.98	0263.0	01.31	25.0	780123	001.95	016.75	0322.9	02.03	25.0
33022	780203	002.03	019.31	0263.9	03.27	29.5	780130	002.37	014.59	0340.7	06.25	23.9
33023	780204	000.92	013.51	0574.5	04.04	14.8	780202	001.15	011.79	0652.5	06.01	13.1
33024	780209	002.16	023.40	0352.7	04.87	22.4	780207	002.20	031.13	0366.1	04.60	21.0
33025	780210	001.88	018.73	0524.1	02.35	15.9	780207	001.85	015.84	0573.0	02.64	14.7
33026	780217	003.68	031.55	0283.6	01.72	25.7	780215	003.26	027.78	0300.6	01.99	25.0
33027	780307	001.34	011.04	0373.5	01.98	22.4	780302	001.49	011.39	0432.0	02.57	19.5
33028	780227	002.60	044.23	0439.5	02.79	17.1	780224	003.68	057.58	0448.7	[illegible]	16.1
33029	780301	002.01	061.04	0504.1	02.81	14.6	780227	002.17	047.52	0577.7	05.17	13.5
33030	780304	001.32	015.37	0608.2	03.31	13.9	780228	002.26	014.08	0694.5	06.43	12.3

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 PORTLAND PASS

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
33031	780303	002.56	017.16	0462.3	02.83	17.8	780301	002.30	014.42	0577.8	05.14	14.6
33032	780310	003.40	011.83	0464.4	04.07	18.0	780309	002.59	009.92	0528.5	05.45	16.1
33033	780310	001.42	014.50	0524.8	03.88	16.1	780309	001.48	009.30	0599.0	05.63	14.3
33034	780329	003.17	010.31	0525.1	03.27	16.1	780328	003.53	026.30	0543.8	03.82	14.9
33036	780417	001.32	020.25	0550.0	03.93	15.1	780413	001.86	016.91	0578.4	04.50	14.5
33037	780417	001.90	012.05	0658.7	02.52	13.0	780413	002.44	034.85	0691.1	02.60	11.8
33038	780417	001.87	006.31	0828.4	04.89	10.5	780414	002.56	017.34	0627.5	05.00	13.4
33039	780418	002.65	007.77	0521.1	01.83	16.4	780417	002.76	005.35	0559.6	02.46	15.4
33040	780418	001.37	008.02	0705.5	03.41	12.3	780417	001.59	006.24	0747.7	03.62	11.6
33041	780413	001.32	007.43	0351.7	04.15	24.1	780411	001.84	022.48	0382.1	05.58	21.0
33042	780623	002.18	050.85	0511.6	02.92	14.8	780622	001.69	043.10	0547.5	03.92	14.3
33043	780804	001.88	006.61	0666.2	02.53	13.0	780803	001.25	005.88	0850.6	01.82	10.3
43002	771014	016.74	050.75	0559.2	00.98	12.8	771007	004.23	039.67	0576.8	00.77	13.6
43003	771021	001.85	009.05	0388.6	04.80	21.7	771014	002.02	009.44	0443.6	02.34	19.1
43004	771019	001.34	007.92	0522.1	02.59	16.5	771021	001.54	004.64	0522.2	03.06	16.6
43005	771108	013.40	005.67	0670.7	02.96	12.3	771110	005.58	017.34	0599.6	03.38	13.8
43006	771117	001.70	019.59	0597.6	01.89	14.0	771115	001.60	013.28	0648.2	01.57	13.2
43007	771202	002.24	026.89	0337.8	03.23	22.9	771117	001.99	026.02	0386.0	04.44	20.5
43008	771130	001.50	025.03	0353.2	02.49	22.3	771121	001.58	023.69	0402.8	04.49	19.9
43009	771201	002.08	002.91	0355.0	01.97	24.2	771130	002.30	012.01	0373.8	02.74	22.2
43010	771208	001.23	007.73	0519.6	04.68	16.6	771130	002.18	014.09	0534.6	07.41	15.7
43011	771206	002.28	043.35	0632.0	00.69	12.5	771201	001.93	032.72	0736.6	01.01	11.2
43012	771212	002.35	021.81	0252.4	01.78	30.2	771209	001.91	018.18	0285.0	02.76	27.7
43013	771216	001.61	008.91	0248.2	03.60	33.2	771214	001.67	011.81	0256.9	03.51	31.6
43014	771215	001.79	026.47	0345.1	01.57	22.6	771214	003.00	042.63	0361.6	01.71	20.2
43015	771221	001.80	007.78	0555.8	02.38	15.5	771214	002.29	018.46	0633.2	03.62	13.2
43016	780103	003.53	021.03	0237.7	01.93	31.4	771227	004.05	034.81	0308.9	03.58	23.6
43017	771229	002.67	042.60	0550.7	01.32	14.2	771228	003.17	030.29	0655.1	02.33	12.4
43018	780119	002.39	025.07	0503.8	04.21	16.1	780112	003.24	028.99	0557.9	05.68	14.4
43019	780127	002.20	022.14	0373.9	04.38	21.3	780124	001.68	009.75	0423.9	05.08	19.9
43020	780202	003.32	023.09	0241.1	01.63	30.8	780130	004.68	023.53	0262.4	02.39	28.2
43021	780201	001.64	005.16	0224.4	03.04	37.3	780127	001.55	003.95	0257.4	03.81	33.0
43022	780202	001.04	028.37	0361.7	00.67	21.7	780131	002.00	020.29	0402.0	01.58	20.1
43023	780207	023.63	034.11	0495.8	01.68	14.2	780202	001.68	028.54	0573.6	01.53	14.2
43024	780315	001.68	019.84	0558.8	01.38	14.9	780314	002.18	041.50	0609.8	01.32	13.0
43025	780324	002.20	040.03	0545.8	02.37	14.4	780322	002.31	038.57	0550.0	02.28	14.4
43026	780407	001.06	025.89	0547.5	01.80	15.0	780406	001.50	021.78	0623.9	02.49	13.4
43027	780410	001.05	027.20	0667.5	00.71	12.4	780407	001.86	029.56	0717.0	01.04	11.5
43029	780627	001.95	003.46	0346.1	04.86	24.8	780626	001.77	016.21	0378.6	04.89	21.6
43030	781030	001.42	033.81	0603.1	01.38	13.4						
43031	781229	000.76	056.97	0656.1	00.53	11.9						

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 PORTLAND PASS

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
54004	770929	001.65	005.64	0616.6	01.49	14.1	770922	001.38	004.06	0649.6	01.84	13.4
54005	771011	000.34	005.67	0494.8	02.35	17.6	771005	000.19	000.10	0473.7	02.77	18.7
54006	771013	001.01	000.18	0478.3	04.54	18.4	771007	001.10	000.32	0481.4	04.81	18.3
54007	771019	000.91	000.43	0528.1	01.70	16.7	771007	000.86	000.89	0555.8	01.50	15.8
54008	771012	000.55	000.58	0525.8	03.58	16.8	771005	000.56	000.24	0526.2	04.35	16.8
54009	771019	000.22	000.03	0450.2	03.59	19.7	771012	000.15	000.03	0458.3	04.00	19.3
54010	771020	000.67	001.25	0533.2	03.20	16.5	771014	000.42	000.81	0551.9	03.60	16.0
54011	771027	001.54	000.56	0655.3	01.25	13.4	771021	000.55	000.10	0661.5	01.33	13.4
54012	771115	000.35	001.99	0457.7	03.71	19.2	771114	000.26	000.16	0497.1	05.08	17.8
54013	771117	000.89	001.33	0321.2	01.98	27.2	771114	000.56	000.84	0321.8	02.29	27.3
54014	771129	001.41	001.40	0496.4	03.47	17.6	771128	001.02	001.67	0577.5	05.64	15.2
54015	771203	002.29	021.40	0534.3	07.29	15.4	771130	001.77	014.30	0578.1	09.80	14.6
54016	771202	001.18	007.49	0680.8	02.32	12.7	771130	000.65	004.65	0797.7	03.62	11.0
54017	771208	000.90	009.59	0357.7	02.40	23.6	771206	001.02	012.65	0321.2	02.21	25.8
54018	771214	000.31	003.51	0376.6	01.89	23.2	771213	001.14	017.21	0372.3	01.67	22.0
54019	771215	001.18	004.33	0256.7	03.90	33.2	771214	001.22	007.63	0258.1	04.00	32.4
54020	771221	001.21	004.00	0243.1	01.68	35.0	771215	001.00	005.63	0274.5	02.04	30.9
54021	771220	001.18	014.24	0361.2	02.17	22.9	771216	000.94	003.73	0421.3	02.42	20.6
54022	771230	001.69	004.09	0412.7	02.60	20.9	771229	001.44	004.46	0473.3	03.43	18.3
54023	780107	001.59	013.23	0360.1	02.47	23.0	780105	001.98	015.03	0376.7	02.85	21.8
54024	780106	000.81	001.35	0398.5	02.65	22.0	780105	001.29	005.25	0413.8	03.40	20.8
54025	780109	000.71	003.43	0367.5	06.22	23.6	780106	000.80	002.88	0409.8	07.41	21.3
54026	780113	001.27	009.16	0262.4	01.32	31.6	780106	001.37	007.04	0258.9	01.14	32.3
54027	780111	001.46	014.76	0440.3	01.64	18.9	780109	001.42	010.96	0514.3	01.09	16.5
54028	780111	001.48	002.71	0261.9	02.31	32.7	780109	001.07	002.17	0247.2	02.48	34.9
54029	780113	001.04	008.54	0666.8	06.27	13.0	780111	000.99	006.14	0622.6	07.14	14.0
54030	780112	001.28	009.08	0336.7	02.22	25.0	780120	001.06	007.66	0368.8	02.94	23.1
54031	780116	000.86	004.05	0272.5	01.87	31.5	780112	000.85	003.49	0292.4	02.27	29.5
54032	780116	001.09	011.34	0308.1	01.25	26.9	780113	000.54	004.18	0334.5	01.70	25.9
54033	780121	001.78	027.08	0276.2	01.73	27.3	780113	000.48	004.19	0321.2	02.51	26.9
54034	780329	000.76	009.40	0297.3	01.36	28.2	780328	000.59	011.21	0311.4	01.58	26.8
54035	780404	001.29	028.82	0563.1	01.44	14.5	780403	001.45	069.57	0635.7	00.79	11.8
54036	780405	000.44	008.11	0402.1	01.49	21.3	780404	000.62	007.56	0409.0	01.54	21.0
54037	780412	000.97	010.45	0379.9	02.05	22.2	780411	000.52	005.79	0400.6	02.33	21.6
54038	780412	001.32	007.56	0341.7	01.75	24.8	780411	001.34	007.83	0350.9	02.37	24.1
54039	780413	000.59	022.82	0568.3	01.89	14.6	780412	000.59	021.05	0610.8	02.31	13.7
54040	780421	000.65	014.12	0404.0	01.30	20.7	780419	000.62	014.29	0365.2	01.01	22.8
54041	780421	001.20	031.16	0606.6	03.51	13.4	780420	000.96	031.86	0582.6	02.71	13.9
54042	780505	000.53	005.41	0454.7	02.44	19.1	780502	000.47	003.75	0452.3	03.08	19.3
54043	781221	001.27	006.88	0235.1	01.71	35.5						
54044	790105	001.19	011.34	0311.9	02.47	26.6						
64002	771008	000.76	027.97	0314.2	01.41	24.6	771007	000.96	026.48	0303.3	01.60	25.5
64003	771101	000.39	001.24	0501.2	01.69	17.6	771028	000.81	000.56	0476.1	02.40	18.5
64004	771116	001.49	014.89	0394.8	03.56	21.0	771109	001.16	005.81	0428.3	05.25	20.1
64005	771115	000.57	000.98	0440.0	01.51	20.0	771110	000.38	000.13	0559.4	02.00	15.8
64006	771114	001.42	001.57	0445.1	03.43	19.6	771110	001.36	001.64	0472.1	03.42	18.5
64007	771115	001.33	007.56	0521.3	03.06	16.5	771114	001.40	017.79	0554.3	03.99	15.1
64008	771123	000.42	000.50	0333.1	03.27	26.5	771121	000.28	000.08	0339.8	04.33	26.0
64009	771130	001.01	006.56	0351.5	01.33	24.3	771128	001.14	008.69	0393.2	02.12	21.6
64011	771201	001.76	027.65	0572.6	00.94	14.3	771129	001.29	012.11	0634.5	01.39	13.5
64012	771202	001.65	004.32	0323.2	02.37	26.5	771201	000.81	000.54	0306.1	03.08	28.7
64013	771206	000.18	000.12	0292.4	01.95	30.2	771201	000.22	000.86	0316.2	02.56	27.9
64014	771209	000.37	001.25	0343.8	01.44	25.6	771207	000.39	000.66	0385.5	01.75	22.9
64015	771208	000.32	001.72	0524.4	01.70	16.8	771207	000.27	000.64	0567.5	01.77	15.6
64016	771209	000.42	004.09	0266.2	01.71	32.4	771208	014.30	003.21	0276.3	01.31	27.1
64017	771215	000.84	002.96	0267.4	01.19	32.3	771209	000.77	004.62	0319.1	01.67	27.0
64018	771215	000.90	011.03	0275.6	02.74	30.0	771214	001.01	012.63	0277.2	03.04	29.5
64019	771217	000.64	006.94	0407.6	01.21	21.1	771214	000.81	006.54	0437.2	01.28	19.7
64020	771220	001.32	004.64	0345.8	02.32	24.8	771216	000.95	003.88	0366.1	02.62	23.6
64021	780315	000.87	010.97	0288.6	01.57	28.7	780314	001.04	009.72	0310.3	02.01	27.0
64022	771222	000.94	003.42	0450.2	04.16	19.3	771220	000.57	000.24	0489.5	06.05	18.0
64023	771227	000.33	000.50	0369.1	02.21	23.9	771220	000.14	000.12	0418.0	02.92	21.2
64024	771230	000.82	007.10	0564.3	01.62	15.3	771229	000.82	006.17	0596.6	02.56	14.6
64025	780331	000.52	000.39	0457.3	02.37	19.3	780329	000.45	000.44	0507.4	02.73	17.4
64026	780106	001.02	010.31	0287.6	01.68	28.9	770105	001.26	012.51	0291.9	02.07	28.1
64027	780106	001.51	004.77	0397.5	02.42	21.6	770105	000.89	003.80	0425.7	02.74	20.4
64028	780412	000.97	005.17	0260.5	01.79	32.6	780411	001.32	005.70	0280.1	01.91	30.2
64029	780107	000.47	000.49	0350.9	01.40	25.1	780105	000.50	000.56	0363.8	01.60	24.2
64030	780107	001.42	010.09	0281.1	01.55	29.4	780105	001.79	008.00	0295.7	01.95	28.2
64031	780112	000.44	001.35	0348.4	01.03	25.2	780105	000.94	001.07	0375.4	01.33	23.3
64032	780109	001.24	009.81	0270.5	01.98	30.6	780106	001.41	009.17	0297.2	02.88	28.1
64033	780120	000.69	009.34	0331.6	01.78	25.4	780119	001.24	010.63	0346.3	02.26	24.2

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 PORTLAND PASS

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
64034	780112	001.04	005.55	0273.8	02.20	31.0	780105	001.15	006.22	0271.7	02.58	31.1
64035	780111	000.13	001.27	0331.7	00.90	26.5	780109	000.24	000.73	0319.8	01.76	27.6
64036	780110	000.71	001.57	0504.8	02.68	17.4	780109	000.72	000.94	0537.7	02.38	16.4
64037	780110	000.46	004.20	0424.5	01.64	20.1	780109	000.65	010.97	0477.2	03.16	17.9
64038	780113	001.27	005.93	0521.2	04.44	16.6	780111	001.40	005.02	0605.9	05.52	14.3
64039	780113	001.11	005.84	0298.0	01.77	28.5	780112	001.25	007.48	0344.6	02.03	24.6
64040	780119	000.38	001.07	0335.9	00.87	26.2	780112	000.51	001.71	0363.5	01.29	24.1
64041	780116	001.00	007.90	0287.8	01.96	29.2	780113	001.05	006.19	0311.0	02.24	27.4
64042	780120	000.74	006.10	0284.5	01.33	29.9	780116	000.95	006.76	0317.7	01.84	26.6
64043	780221	000.63	009.53	0547.4	00.52	15.7	780216	000.19	000.07	0645.5	01.10	13.7
64045	780412	001.19	001.49	0418.7	01.34	20.9	780411	001.37	003.14	0459.6	01.36	18.9
64047	780414	001.41	008.73	0457.7	02.51	18.6	780412	001.79	010.26	0477.4	03.28	17.8
64048	780417	001.84	028.04	0475.5	00.96	16.9	780414	002.14	040.90	0492.3	01.34	15.7
64049	780424	000.61	008.59	0404.4	02.58	21.1	780420	000.86	010.08	0412.1	02.91	20.6
64050	780420	000.96	009.59	0410.7	01.88	20.7	780425	000.84	007.85	0404.6	01.77	21.1
64051	780420	000.47	001.93	0304.9	03.47	28.7	780428	000.56	001.59	0340.5	04.05	25.7
64052	780420	001.25	003.89	0570.8	01.79	15.3	780425	003.00	067.74	0506.8	01.11	14.2
64053	780724	001.46	007.12	0342.6	01.34	24.7	780721	001.28	007.18	0314.4	01.38	26.9
64054	781103	000.27	000.24	0497.2	01.11	17.8						
64055	781129	001.43	023.35	0481.2	00.97	17.0						
64056	781201	001.18	001.76	0296.9	03.72	29.2						
64057	781213	001.28	010.66	0261.7	01.83	31.4						
64058	781214	000.99	008.92	0537.7	01.67	16.0						
64059	781214	000.31	008.30	0293.2	01.16	28.9						
64060	781218	000.46	001.68	0453.0	08.23	19.4						
74002	771019	000.25	000.03	0472.1	01.96	18.8	771013	000.19	000.67	0455.4	02.45	19.4
74003	771015	000.20	000.04	0444.2	05.63	19.9	771012	000.35	000.07	0465.3	06.73	19.0
74004	771022	000.47	006.02	0579.3	01.19	14.9	771026	000.42	005.89	0570.1	01.48	15.3
74005	771110	000.46	002.78	0395.1	05.17	22.1	771109	000.34	002.59	0409.2	06.58	21.4
74006	771202	000.90	003.84	0430.1	01.33	20.2	771123	000.35	001.00	0459.0	02.05	19.2
74007	771130	000.35	000.52	0378.9	03.01	23.3	771129	000.54	004.20	0443.8	01.33	19.6
74009	771216	000.45	015.12	0282.5	01.17	28.8	771207	000.48	007.78	0270.4	01.79	31.2
74010	771212	000.19	000.46	0460.4	00.87	19.2	771208	000.15	000.34	0501.6	01.55	17.6
74011	771219	001.31	020.10	0275.5	01.21	28.5	771215	001.69	027.95	0271.5	01.25	27.6
74012	780109	000.78	009.35	0248.5	01.17	33.4	780105	000.43	006.93	0277.3	01.51	30.5
74014	780116	002.43	023.04	0417.1	00.51	19.2	780112	000.59	003.74	0645.6	02.97	13.6
74015	780117	000.50	004.41	0506.7	01.37	17.2	780113	000.45	000.94	0618.6	02.53	14.3
74016	780217	000.29	012.34	0397.6	01.26	21.2	780216	000.35	014.23	0414.0	01.33	20.3
74017	780125	000.66	012.53	0318.1	00.87	26.0	780113	000.82	012.90	0337.5	01.24	24.6
74018	780227	000.27	002.05	0517.9	01.20	17.0	780221	000.31	000.03	0573.7	01.63	15.4
74019	780315	000.53	012.16	0274.5	01.04	30.0	780314	000.85	010.24	0296.4	01.26	28.1
74020	780406	001.90	027.36	0505.4	01.46	16.0	780405	001.29	016.43	0550.5	01.81	15.3
74021	780117	000.58	004.04	0570.6	01.53	15.3	780116	000.95	011.23	0570.4	01.43	15.0
74023	780301	000.61	010.03	0319.3	01.17	26.3	780228	000.94	007.78	0349.5	01.75	24.3
74024	780306	000.46	009.74	0339.0	01.45	24.9	780306	000.59	010.36	0372.3	02.00	22.7
74025	780406	001.02	017.99	0486.2	01.63	17.1	780405	000.33	003.68	0548.1	04.12	16.0
74026	780411	000.17	000.00	0513.1	00.42	17.3	780410	000.18	001.57	0521.8	01.15	16.9
74027	780420	000.28	001.56	0510.8	01.29	17.2	780419	000.75	003.84	0444.8	01.35	19.6
74028	780424	000.27	000.27	0489.8	04.23	18.1	780420	000.22	000.84	0463.5	04.02	19.0
74031	781002	000.57	010.18	0607.2	02.56	14.2						
74032	790102	000.67	008.93	0313.7	01.24	26.9						

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APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 PORTLAND FAIL

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
25001	770929	001.49	013.52	0550.0	03.87	15.4	770929	001.99	019.53	0548.6	03.77	15.4
25002	771006	001.78	019.22	0307.1	03.65	25.9	771005	001.53	013.17	0293.3	04.55	27.8
25003	771029	001.51	057.45	0700.2	02.49	11.2	771028	002.25	074.93	0728.4	02.95	10.4
25004	771107	001.91	029.15	0462.2	02.18	17.3	771102	002.12	029.84	0495.9	02.32	16.1
25005	771116	002.27	006.50	0534.2	03.32	16.1	771115	002.14	004.55	0549.2	04.09	15.8
25006	771129	001.47	021.70	0571.7	03.99	14.5	771123	001.65	023.85	0596.1	04.44	13.9
25007	771205	002.14	027.00	0486.9	01.98	16.5	771129	002.43	030.69	0518.1	03.40	15.4
25008	771207	001.93	007.91	0521.7	02.08	16.4	771201	004.86	008.52	0590.4	02.69	14.3
25009	771207	002.85	016.68	0432.5	02.83	19.0	771201	002.38	016.59	0490.3	03.35	16.9
25010	771209	001.97	017.82	0242.8	03.92	32.0	771205	002.16	021.54	0291.1	04.94	26.7
25011	771215	001.99	018.40	0331.7	03.52	24.2	771213	001.90	011.99	0370.8	04.04	22.4
25012	771216	016.91	175.12	0420.0	02.67	11.8	771214	010.19	162.37	0498.3	03.49	11.3
25013	771222	002.47	044.30	0519.8	04.37	14.8	771216	002.68	040.96	0535.6	05.16	14.6
25014	771221	003.21	028.08	0420.3	05.09	18.7	771220	003.70	033.64	0438.2	05.06	17.6
25015	780104	003.81	002.26	0214.2	02.98	38.6	771229	001.75	005.45	0261.1	04.78	32.2
25016	780113	001.71	012.07	0406.0	02.77	20.6	780110	001.57	010.68	0420.4	02.85	20.1
25017	780118	002.41	037.86	0534.5	05.95	14.7	780116	002.45	025.05	0561.8	05.43	14.6
25019	780123	003.59	061.08	0467.5	02.92	15.4	780118	002.57	038.39	0538.5	04.90	14.6
25020	780128	001.86	027.41	0279.0	04.04	27.0	780126	001.94	037.39	0302.0	04.99	24.2
25021	780130	001.98	018.14	0229.8	03.07	33.5	780126	002.85	019.91	0254.6	04.03	30.1
25022	780207	001.43	020.27	0512.8	02.22	16.1	780202	001.59	019.62	0565.4	02.66	14.7
25023	780213	003.14	016.33	0639.3	03.29	13.1	780208	002.36	018.32	0654.1	03.02	12.8
25024	780214	004.71	032.30	0374.4	05.34	20.1	780215	004.43	031.58	0409.2	05.80	18.8
25025	780228	001.96	029.73	0286.2	02.37	26.1	780224	001.51	024.25	0313.1	02.54	24.9
25026	780413	002.34	008.44	0334.1	01.82	25.0	780411	001.56	005.51	0297.0	02.60	28.6
25027	780307	003.89	034.09	0454.6	02.77	17.0	780304	003.73	033.71	0506.7	03.95	15.5
25028	780320	002.90	048.95	0530.8	03.06	14.4	780317	003.29	047.55	0517.1	03.20	14.7
25029	780314	001.43	041.07	0322.8	03.04	22.6	780310	001.83	056.03	0325.0	03.27	21.2
25030	780316	002.39	018.48	0295.6	03.30	26.7	780313	002.68	022.67	0307.0	03.71	25.3
25031	780322	005.23	042.98	0517.1	05.24	14.7	780320	005.17	040.81	0563.5	06.99	13.8
25032	780323	003.33	039.53	0433.6	01.90	17.5	780322	003.98	046.57	0507.6	03.38	14.9
25033	780412	003.92	105.56	0608.3	01.89	11.3	780328	005.19	174.18	0569.9	01.51	10.3
25034	780403	023.47	039.04	0461.4	02.26	14.8	780329	002.57	034.53	0542.9	02.27	14.6
25035	780407	002.11	038.57	0534.7	03.00	14.7	780406	002.66	048.39	0553.4	03.32	13.9
25036	780413	001.64	042.69	0582.4	02.38	13.5	780411	002.09	051.81	0571.9	02.89	13.4
25037	780417	002.45	036.65	0355.7	05.21	21.1	780414	002.55	041.67	0364.5	05.51	20.2
25038	780420	002.26	011.03	0532.9	04.20	15.9	780419	003.84	009.30	0573.5	05.04	14.8
25039	780502	002.75	061.81	0577.5	02.59	13.0	780501	003.92	119.16	0614.0	01.17	10.9
25040	780516	003.71	056.67	0438.3	02.41	16.4	780515	004.29	074.90	0415.8	02.10	16.2
35001	771008	002.01	021.38	0564.9	03.12	14.7	771005	001.88	025.66	0556.2	02.93	14.7
35002	771101	006.37	004.11	0443.6	03.53	18.9	771102	004.50	003.74	0431.5	03.26	19.6
35003	771022	001.73	013.24	0353.5	04.78	23.2	771026	001.81	020.97	0399.7	06.39	20.2
35004	771029	026.68	051.96	0529.1	03.12	12.8	771020	053.35	058.28	0504.1	04.89	11.4
35005	771029	002.14	025.67	0283.2	02.85	26.9	771025	002.09	023.68	0311.9	04.28	24.9
35006	771107	002.09	045.15	0474.4	02.97	16.1	771110	002.49	062.12	0526.3	02.90	14.0
35007	771104	002.65	024.13	0279.4	01.97	27.2	771101	010.15	013.66	0333.9	02.30	22.9
35008	771110	002.51	019.62	0378.0	01.65	21.3	771109	002.42	020.04	0407.1	02.20	19.9
35009	771130	001.57	011.51	0737.3	01.77	11.7	771114	002.54	042.95	0629.0	01.93	12.6
35010	771121	007.72	015.05	0580.7	02.95	14.1	771116	007.50	016.42	0597.7	03.69	13.7
35011	771227	004.08	053.31	0437.2	03.99	16.6	771215	003.59	044.76	0429.3	04.45	17.4
35012	771228	003.73	038.85	0237.1	01.89	28.6	771219	002.54	030.84	0242.1	02.36	29.7
35014	771230	004.16	056.74	0399.6	01.92	17.7	771229	004.93	062.54	0465.7	05.58	15.3
35015	780113	001.16	024.56	0320.4	01.16	24.5	780110	001.54	033.62	0293.6	01.39	25.2
35016	780121	002.43	040.97	0758.9	01.55	10.7	780116	002.04	043.68	0802.5	01.68	10.1
35017	780123	004.69	118.61	0478.0	03.32	13.1	780120	004.03	107.04	0589.0	05.38	11.5
35018	780124	001.46	039.82	0303.8	02.05	23.9	780123	002.05	044.95	0336.9	02.53	21.4
35019	780131	002.77	047.16	0239.7	02.46	27.5	780125	003.12	044.17	0275.6	02.98	25.0
35020	780221	001.06	004.07	0382.6	03.14	22.6	780216	001.65	010.68	0415.1	07.76	20.3
35021	780222	003.76	012.80	0287.3	04.96	27.8	780213	002.65	013.64	0299.6	05.54	26.9
35022	780301	001.95	036.95	0571.3	01.78	14.0	780227	002.19	034.64	0614.6	02.42	13.1
35023	780323	003.87	089.14	0316.7	01.24	18.9	780322	005.05	099.34	0355.0	01.05	16.8
35024	780323	002.34	026.75	0275.5	03.57	27.3	780322	002.79	043.31	0272.8	03.25	25.4
35025	780407	002.24	087.54	0523.2	02.73	13.3	780329	002.73	075.09	0494.2	02.87	14.3
35026	780331	001.80	022.37	0361.7	01.18	22.0	780330	001.89	020.25	0378.2	01.44	21.3
35027	780407	002.68	051.22	0487.8	03.42	15.4	780406	002.88	048.25	0525.1	05.32	14.5
35028	780406	003.14	122.08	0614.3	01.02	10.9	780405	002.87	077.48	0720.3	03.38	10.4
35029	780410	003.13	043.47	0268.4	02.67	25.6	780407	003.72	080.46	0273.7	01.88	21.5
35030	780417	013.46	009.24	0580.6	03.14	13.9	780413	012.93	010.32	0602.5	03.73	13.4
35031	780417	001.99	033.13	0229.8	01.74	30.8	780414	002.49	038.70	0227.9	02.00	29.9
35032	780421	002.79	182.16	0699.8	01.09	08.9	780420	001.15	043.10	0654.7	01.63	12.2
35033	780420	001.20	061.40	0707.0	01.92	11.0	780419	001.37	058.82	0686.6	02.04	11.3
35034	780508	001.99	029.77	0287.3	01.80	26.0	780505	003.07	039.05	0292.1	02.31	24.4

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 PORTLAND FAIL

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
35035	780928	002.33	028.34	0294.1	01.81	25.6						
45001	771021	002.61	018.12	0339.8	01.62	23.6	771014	002.38	025.26	0273.5	01.92	27.7
45002	771031	002.66	032.33	0377.6	01.36	20.3	771020	002.83	032.70	0410.3	02.14	18.8
45003	771101	003.59	064.55	0415.9	02.24	16.8	771021	003.87	060.14	0395.7	02.27	17.7
45004	771104	003.60	048.08	0452.0	03.27	16.5	771025	003.37	035.76	0503.5	04.83	15.6
45005	771102	002.41	031.67	0385.6	04.07	20.0	771028	002.89	034.33	0392.3	04.64	19.5
45006	771103	002.74	034.87	0336.9	01.20	22.2	771101	003.03	032.48	0341.2	01.18	22.1
45007	771109	001.88	014.33	0381.8	03.88	21.6	771108	002.13	017.79	0437.8	05.43	18.8
45008	771121	002.18	035.48	0379.5	04.28	20.1	771115	002.24	037.17	0411.3	04.43	18.6
45009	771202	003.77	062.33	0336.9	02.81	19.8	771130	003.68	056.31	0374.9	04.14	18.7
45010	771209	002.13	070.16	0384.0	01.92	17.7	771208	001.83	040.65	0429.7	03.42	17.8
45011	771220	003.84	072.62	0276.2	00.92	22.0	771213	005.92	093.11	0302.3	00.84	19.0
45012	771216	002.69	049.69	0388.9	00.86	18.6	771215	003.60	048.89	0415.4	01.31	17.6
45013	771222	002.96	029.42	0418.3	03.77	18.7	771216	003.22	022.12	0490.3	04.54	16.6
45014	771220	002.70	030.18	0230.2	02.21	31.0	771229	003.50	031.14	0251.4	02.34	28.5
45015	771227	002.95	038.26	0326.3	01.41	22.4	771221	002.97	038.72	0338.5	01.45	21.7
45016	780106	003.26	047.58	0271.9	02.26	24.8	780104	002.47	035.58	0328.0	03.44	22.6
45017	771219	003.23	018.10	0261.8	02.47	29.5	771215	002.93	014.27	0270.8	02.91	29.3
45018	780118	002.25	026.50	0466.6	01.87	17.2	780117	002.67	020.21	0516.4	04.48	15.9
45019	780119	002.24	042.14	0322.2	04.01	22.4	780118	002.58	042.63	0375.6	04.80	19.7
45020	780126	005.12	012.00	0335.0	00.85	24.0	780125	005.49	009.14	0351.1	01.77	23.2
45021	780227	003.21	042.15	0432.2	03.12	17.4	780223	004.04	054.91	0455.1	03.16	16.0
45022	780302	000.61	007.53	0472.9	03.52	18.2	780224	000.83	014.71	0472.2	02.81	17.8
45023	780313	004.03	018.42	0419.8	01.77	19.2	780310	003.12	015.66	0481.2	02.31	17.2
45024	780322	003.25	055.08	0483.9	02.33	15.4	780321	003.18	052.39	0500.6	02.25	15.0
45025	780330	003.82	073.76	0236.8	01.87	24.2	780328	003.08	063.27	0276.7	01.69	23.0
45026	780406	002.11	061.79	0427.2	01.67	16.7	780403	001.96	072.13	0338.0	01.08	19.4
45027	780411	002.39	025.46	0238.8	02.22	31.0	780406	003.02	023.94	0274.9	03.31	27.5
45028	780406	002.01	033.71	0312.7	04.25	23.8	780405	002.40	029.94	0287.9	03.73	25.9
45029	780418	002.47	026.70	0259.6	02.22	28.7	780414	003.00	031.37	0280.3	02.52	26.1
45030	780427	002.01	019.34	0642.7	00.94	13.1	780424	002.36	044.09	0592.7	00.82	13.2
45031	780928	001.51	008.42	0260.1	04.11	31.9						
45032	781013	004.09	027.25	0505.1	03.15	15.8						
45033	781228	002.81	050.19	0319.7	03.32	21.8						

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	HTS						DEQ					
	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
56001	771206	008.12	077.58	0305.7	02.96	19.6	771128	004.79	060.21	0386.0	05.60	17.9
56002	771201	001.06	019.91	0514.9	01.77	16.1	771129	000.74	011.24	0575.6	02.79	14.9
56003	771202	002.07	040.15	0495.8	01.38	15.4	771129	001.50	041.08	0584.0	01.50	13.6
56004	771202	001.27	014.69	0311.6	01.48	26.2	771130	001.36	012.08	0379.7	01.91	22.0
56005	771203	004.40	000.84	0432.9	02.13	19.8	771201	004.19	000.88	0463.4	02.48	18.6
56006	771212	000.17	000.15	0416.6	03.91	21.2	771208	000.80	012.09	0464.5	05.78	18.2
56007	771216	001.31	018.15	0300.5	02.39	26.6	771212	001.41	020.35	0275.3	02.40	28.4
56008	780118	002.55	074.14	0327.3	01.99	19.6	780116	002.77	070.14	0357.4	02.49	18.6
56009	771220	000.86	015.69	0290.3	02.13	27.9	771216	000.95	013.05	0325.4	01.77	25.4
56010	771227	000.82	007.42	0336.7	01.04	25.3	771221	001.06	010.91	0346.8	01.29	24.1
56011	780106	000.39	013.96	0283.7	01.25	28.9	771229	000.68	009.34	0336.0	02.75	25.1
56013	780119	004.13	054.64	0305.6	01.20	21.9	780117	004.25	047.98	0337.1	01.86	20.8
56014	780119	000.64	002.45	0384.2	02.53	22.7	780117	000.38	001.44	0446.4	01.65	19.7
56015	780119	001.07	021.68	0395.3	02.68	20.5	780117	000.98	023.21	0407.8	02.66	19.8
56016	780119	001.11	005.91	0335.9	01.74	25.4	780118	001.28	003.39	0368.6	02.16	23.5
56017	780123	002.95	067.46	0445.5	01.06	15.8	780118	002.93	045.49	0541.4	01.40	14.3
56018	780127	002.39	027.90	0554.3	01.87	14.6	780125	002.04	021.24	0678.0	02.47	12.4
56019	780130	003.27	080.61	0494.8	00.65	14.0	780131	001.83	022.79	0636.2	01.37	13.1
56020	780131	000.39	003.22	0463.3	01.36	18.9	780127	000.33	000.11	0543.8	01.93	16.3
56021	780216	002.28	061.23	0467.7	02.33	15.5	780215	002.22	067.07	0528.5	03.83	13.8
56022	780216	004.03	093.89	0460.1	03.22	14.3	780215	001.33	013.62	0579.6	04.30	14.7
56023	780223	000.95	006.13	0475.7	00.97	18.2	780217	000.36	000.50	0571.4	01.39	15.5
56024	780222	001.16	020.09	0452.0	03.45	18.2	780221	001.23	018.87	0531.9	04.83	15.7
56025	780224	001.00	005.80	0246.4	01.49	34.3	780221	001.15	005.82	0270.3	02.05	31.3
56026	780228	003.67	043.29	0538.1	01.06	14.4	780221	001.89	019.08	0624.1	00.90	13.4
56027	780304	004.49	102.42	0941.6	02.44	07.9	780227	003.15	083.62	0597.5	01.89	12.0
56028	780314	003.32	010.35	0569.4	03.23	14.9	780310	002.89	004.50	0630.6	04.17	13.7
56029	780317	000.28	006.07	0521.7	01.37	16.7	780316	000.27	005.14	0588.2	01.77	14.9
56030	780328	001.57	041.32	0249.1	01.48	27.8	780324	001.14	013.07	0261.5	02.06	31.0
56031	780328	000.47	009.31	0778.0	03.39	11.2	780327	000.80	032.67	0857.2	02.29	09.7
56032	780331	006.22	154.66	0429.6	01.37	12.8	780330	004.35	085.69	0510.4	02.12	13.5
56033	780405	001.91	017.62	0303.2	01.78	26.3	780331	001.70	012.75	0329.4	02.75	25.0
56034	780726	000.98	017.83	0360.8	01.89	22.6	780725	001.21	024.08	0396.5	02.06	20.2
56035	780815	004.29	010.50	0606.9	01.04	12.7	780814	004.95	007.29	0677.6	01.11	12.6
56036	780825	000.91	004.66	0308.2	02.67	27.8	780824	001.13	007.19	0313.9	02.85	27.0
56037	781002	002.80	080.09	0275.2	00.48	21.6						
56038	781006	000.59	010.00	0468.6	02.76	18.2						
56039	781026	001.00	017.54	0412.1	06.53	20.0						
56040	781221	005.14	078.22	0486.5	01.41	14.2						
66001	771005	001.33	018.22	0459.9	01.35	18.0	771004	001.08	010.46	0473.5	01.61	18.0
66002	771025	000.35	000.89	0424.6	02.92	20.8	771013	000.33	000.74	0430.3	04.12	20.5
66003	771022	002.71	057.27	0452.7	01.93	16.1	771020	002.35	053.49	0467.4	02.29	15.9
66004	771102	001.34	041.20	0559.5	03.32	14.1	771027	001.28	038.82	0542.3	03.95	14.6
66005	771114	001.47	017.88	0375.7	01.50	21.7	771110	001.25	018.94	0429.8	01.51	19.1
66006	771123	004.20	049.89	0339.0	02.18	20.6	771117	003.72	040.94	0358.3	02.54	20.4
66007	771129	001.84	015.25	0398.2	01.53	20.7	771128	001.72	014.42	0410.3	01.78	20.2
66008	771129	004.13	048.79	0321.2	01.80	21.6	771128	004.37	053.37	0368.0	02.14	19.0
66009	771212	000.52	002.88	0262.2	00.92	33.0	771209	000.54	003.02	0271.5	01.19	31.9
66010	771213	001.63	039.09	0351.8	01.69	21.2	771209	001.29	017.05	0427.3	03.32	19.4
66011	771215	001.63	020.87	0331.5	01.72	24.0	771213	002.15	025.95	0346.6	01.96	22.5
66012	780126	001.78	036.50	0250.1	00.86	28.3	780123	001.97	033.94	0269.5	01.11	26.9
66013	771229	005.01	043.99	0409.3	02.31	17.9	771228	008.51	052.86	0463.8	03.44	15.5
66014	771229	000.95	015.21	0398.7	03.14	20.8	771228	001.09	007.83	0442.2	05.02	19.4
66015	771230	001.31	009.12	0261.8	02.37	31.6	771229	001.69	012.38	0290.8	03.11	28.1
66016	780105	006.29	076.17	0294.9	02.52	20.3	771230	005.45	066.62	0370.8	04.08	18.0
66017	780106	001.51	028.80	0265.7	02.54	28.1	780105	001.53	023.22	0267.1	02.96	28.8
66018	780110	001.18	014.35	0504.0	04.04	16.7	780109	001.43	027.77	0504.5	04.63	16.0
66019	780125	000.32	000.96	0500.9	01.17	17.6	780120	000.83	006.18	0529.0	00.87	16.4
66020	780130	000.31	000.01	0535.4	02.86	16.5	780125	001.59	012.21	0603.1	04.02	14.1
66021	780201	003.21	049.89	0455.8	02.97	16.3	780127	002.33	043.51	0501.3	03.91	15.4
66022	780203	001.29	018.43	0498.1	01.03	16.7	780130	002.14	034.14	0549.5	01.68	14.5
66023	780216	001.11	000.82	0484.4	02.68	18.1	780215	000.89	000.34	0537.8	03.20	16.4
66024	780221	001.31	027.95	0335.8	04.62	23.1	780217	000.81	014.25	0414.0	07.17	20.2
66025	780222	000.95	006.22	0446.3	01.29	19.3	780218	002.52	037.53	0476.7	01.85	16.3
66026	780329	001.59	010.76	0376.1	01.06	22.3	780328	002.94	049.94	0342.0	00.88	20.6
66027	780307	001.60	034.27	0383.5	03.21	20.0	780301	001.17	029.05	0435.7	02.91	18.3
66028	780310	001.25	024.82	0280.1	02.49	27.5	780309	001.05	015.64	0308.3	03.11	26.4
66029	780314	001.11	009.77	0362.8	01.72	23.2	780310	001.02	013.82	0436.9	03.31	19.2
66030	780321	001.35	002.85	0236.8	01.80	36.1	780317	001.41	002.94	0252.8	02.20	33.9
66031	780405	000.77	005.80	0267.2	01.76	31.8	780404	000.80	005.45	0275.2	01.86	31.0
66032	780405	001.24	000.14	0544.2	02.38	16.2	780404	001.22	000.16	0578.3	02.69	15.2
66033	780405	002.49	032.33	0553.5	01.74	14.5	780404	004.04	128.72	0515.1	01.13	12.1

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 PORTLAND FAIL

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
66034	780410	004.14	042.66	0407.1	01.17	18.2	780407	004.44	058.40	0419.4	01.35	16.9
66035	780410	000.37	003.23	0450.0	01.94	19.4	780407	000.25	000.91	0516.7	02.91	17.1
66036	780417	002.04	051.88	0276.2	01.76	24.3	780413	003.52	077.99	0252.2	01.42	23.0
66037	780418	001.10	013.92	0275.9	01.69	29.4	780417	001.10	018.28	0336.5	02.43	24.1
66038	780831	002.75	072.90	0321.8	00.49	19.9	780830	004.95	132.04	0291.0	00.35	17.2
66039	780915	002.63	053.77	0494.3	01.17	15.1						
66040	780919	000.16	001.91	0539.1	00.77	16.3						
66041	780927	001.56	046.31	0326.6	00.57	21.9						
66042	781003	001.62	009.70	0532.3	03.06	16.0						
66043	781011	003.66	038.32	0266.9	02.54	26.2						
66044	781106	002.80	054.65	0468.2	01.35	15.7						
66045	781226	003.31	054.20	0412.7	01.36	17.4						
66046	781228	005.48	149.26	0430.4	00.58	13.0						
66047	790103	018.27	055.59	0462.6	06.28	14.6						
76001	771017	000.66	002.56	0470.8	01.05	18.6	771014	001.50	018.48	0446.7	01.60	18.5
76002	771103	001.21	009.90	0426.5	00.68	19.9	771103	000.56	002.17	0457.2	01.21	19.2
76003	771110	001.50	011.06	0382.6	01.21	21.9	771108	000.93	011.27	0448.0	01.66	18.9
76004	771118	002.20	019.21	0373.3	01.38	21.6	771116	001.04	007.78	0384.3	01.67	22.2
76005	771212	001.39	021.46	0526.8	01.15	15.7	771209	001.64	018.60	0598.3	01.67	14.0
76006	780116	001.73	041.55	0259.6	01.14	26.8	780105	001.58	028.12	0278.9	01.45	27.0
76007	780112	001.21	017.12	0290.4	03.10	27.6	780111	001.72	025.99	0281.4	03.35	27.1
76008	780114	004.08	034.87	0406.5	00.92	18.7	780112	003.64	030.37	0473.7	01.14	16.6
76009	780116	001.79	010.94	0412.3	00.96	20.4	780113	001.62	011.81	0473.6	01.49	17.8
76010	780120	006.96	048.39	0358.5	01.67	19.4	780119	008.37	064.01	0403.9	01.90	16.7
76011	780127	001.49	029.70	0232.4	01.47	31.3	780124	001.28	015.68	0264.3	02.28	30.3
76012	780128	002.17	021.51	0402.9	01.07	20.0	780125	002.04	023.46	0454.3	01.51	17.8
76013	780130	003.81	042.13	0358.6	04.07	20.3	780125	003.33	032.75	0420.1	05.57	18.4
76014	780202	001.55	014.72	0424.9	01.75	19.6	780130	000.92	007.93	0474.2	02.81	18.1
76015	780208	001.36	013.94	0436.2	01.16	19.2	780201	001.20	013.78	0483.7	01.44	17.4
76016	780210	002.48	026.44	0479.8	01.48	16.8	780208	002.74	033.42	0478.5	02.09	16.2
76017	780214	002.71	035.78	0431.0	01.01	17.9	780213	002.59	031.99	0429.0	01.22	18.2
76018	780215	001.69	021.86	0357.8	00.43	22.3	780214	003.00	032.19	0415.0	00.32	18.7
76019	780216	009.25	073.99	0308.3	04.46	19.5	780215	005.59	062.50	0563.1	04.81	18.4
76020	780228	002.07	015.03	0398.3	01.71	20.7	780221	001.23	005.19	0472.1	02.64	18.3
76021	780302	002.99	062.37	0489.2	02.96	14.9	780228	002.98	057.36	0534.2	03.50	14.0
76022	780303	001.48	017.70	0453.1	00.81	18.3	780228	002.61	031.44	0439.0	00.92	17.9
76023	780306	002.32	026.30	0382.1	00.95	20.6	780302	002.46	036.91	0470.1	01.68	16.5
76024	780306	003.09	049.66	0405.0	00.87	18.0	780304	002.50	042.66	0482.7	01.76	15.9
76025	780307	001.82	017.45	0365.4	01.98	22.2	780304	001.61	013.92	0469.0	01.26	17.9
76026	780307	000.62	000.66	0495.4	01.61	17.8	780304	001.24	002.51	0525.5	02.25	16.6
76027	780307	001.88	013.09	0420.9	01.50	19.8	780304	001.81	010.94	0457.4	02.22	18.5
76028	780307	001.38	007.50	0354.4	02.84	23.9	780305	001.95	017.66	0388.0	02.82	21.0
76029	780308	003.37	045.96	0326.3	03.78	21.7	780306	003.58	048.08	0361.4	05.03	18.9
76030	780308	001.85	029.04	0375.3	00.36	20.8	780305	001.08	026.92	0459.0	00.64	17.5
76031	780308	001.43	012.67	0242.9	01.44	33.2	780306	001.77	014.75	0298.5	01.91	27.1
76032	780222	001.01	006.09	0247.1	01.45	33.7	780218	001.16	012.55	0281.7	01.86	29.1
76033	780313	001.61	017.46	0475.4	00.91	17.5	780310	001.68	028.20	0452.4	02.39	17.7
76034	780321	002.50	033.05	0412.8	00.79	18.8	780320	001.89	027.52	0451.1	01.11	17.7
76035	780323	001.73	024.11	0491.2	03.32	16.6	780321	001.58	027.27	0456.0	02.48	17.6
76036	780331	000.47	001.95	0491.5	02.15	17.9	780330	000.40	000.11	0513.4	02.31	17.2
76037	780331	002.46	022.88	0383.1	01.08	20.8	780330	002.75	026.55	0443.8	01.37	17.9
76038	780404	001.39	016.72	0353.1	00.69	23.1	780403	001.54	011.68	0417.0	01.41	20.1
76039	780419	001.21	005.61	0449.6	01.11	19.2	780418	001.13	003.18	0456.1	01.62	19.1
76040	780728	000.47	001.04	0451.2	01.27	19.5	780727	000.55	002.53	0463.3	01.71	18.9
76041	780816	001.19	022.44	0281.6	01.84	27.6	780815	001.50	031.44	0270.4	01.03	27.3
76042	780929	002.02	019.26	0364.3	00.74	22.1						
76043	781005	001.22	022.53	0468.0	01.37	17.5						
76044	781006	001.43	026.91	0365.6	03.95	21.5						
76045	781009	001.25	024.32	0413.0	00.62	19.5						
76046	781031	002.18	040.19	0247.2	01.90	28.0						
76047	781228	002.50	029.44	0418.3	03.69	18.8						
76048	790119	000.72	010.59	0386.8	00.67	21.9						

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 EUGENE

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
27001							780501	004.50	039.27	0412.2	05.34	18.2
27002							771005	002.31	029.05	0407.7	02.79	19.3
27003							771103	003.34	071.51	0318.3	02.90	20.1
27004							771130	002.26	030.45	0502.9	03.65	15.9
27005							771219	003.19	047.96	0426.8	04.74	17.3
27006							771227	002.03	042.32	0423.4	04.06	17.9
27007							780120	005.30	105.94	0516.9	04.39	12.7
27008							780124	003.52	033.61	0316.0	04.62	23.3
27009							780124	001.93	005.70	0291.2	04.62	28.9
27010							780125	001.23	008.72	0333.6	04.21	25.3
27011							780125	002.11	012.77	0295.5	02.91	27.5
27012							780201	002.44	006.79	0311.1	03.62	26.9
27013							780214	002.24	012.33	0474.9	03.32	17.7
27014							780215	002.61	034.05	0518.2	03.76	15.3
27015							780216	003.75	078.28	0269.1	01.46	22.0
27016							780223	003.41	031.03	0562.7	04.63	14.3
27017							780223	001.95	028.65	0556.1	04.87	14.6
27018							780224	002.28	014.68	0665.8	04.74	12.7
27019							780227	002.27	021.82	0587.5	06.77	14.1
27020							780321	002.76	022.49	0483.7	02.69	16.8
27021							780228	002.85	029.99	0345.2	04.46	22.1
27022							780301	002.88	021.72	0581.0	05.20	14.2
27023							780303	002.84	036.90	0565.8	03.02	14.0
27024							780306	002.50	025.55	0511.5	03.86	15.8
27025							780309	003.37	010.05	0382.8	05.18	21.7
27026							780313	001.25	008.25	0320.2	02.49	26.3
27027							780310	001.88	003.86	0465.5	05.85	18.6
27028							780314	004.94	084.55	0290.7	02.41	20.2
27029							780316	004.10	074.14	0559.5	02.31	12.9
27030							780316	002.00	014.09	0236.9	03.80	33.4
27031							780323	001.87	013.85	0652.7	06.72	13.0
27032							780320	002.23	045.88	0671.1	03.26	11.8
27033							780320	002.25	098.00	0653.9	02.08	10.9
27034							780320	003.51	030.28	0265.3	03.02	27.4
27035							780320	001.93	049.63	0643.7	04.87	12.2
27036							780323	004.46	016.57	0508.2	05.87	16.2
27037							780330	002.51	010.55	0547.4	04.64	15.5
27038							780327	003.69	026.61	0268.3	03.73	27.6
27039							780329	004.10	064.18	0588.5	02.09	12.6
27040							780410	004.13	050.96	0202.7	01.12	30.0
27041							780504	001.37	016.46	0550.7	03.95	15.3
37001							771004	001.44	022.32	0377.3	02.53	21.3
37002							771107	001.63	008.46	0382.4	07.75	22.1
37003							771201	003.51	042.48	0544.5	05.44	14.2
37004							771205	001.43	011.03	0411.8	05.20	20.4
37005							780109	003.85	017.31	0232.2	02.25	32.6
37006							771227	001.73	007.94	0584.7	02.84	14.7
37007							771230	003.12	042.95	0543.2	05.23	14.3
37008							780109	003.49	052.07	0500.9	04.21	14.9
37009							780113	002.89	024.96	0324.3	03.71	23.8
37010							770123	003.18	065.45	0502.8	06.21	14.4
37011							780125	001.73	009.42	0298.2	02.74	27.8
37012							780127	004.18	065.41	0300.2	02.97	21.3
37013							780201	001.20	019.49	0491.7	02.43	16.9
37014							780131	002.07	030.58	0311.4	06.11	24.2
37015							780209	001.79	042.55	0489.8	03.34	15.8
37016							780217	004.64	027.65	0523.3	03.74	15.3
37017							780215	001.84	010.01	0568.4	02.56	15.0
37018							780224	002.14	029.42	0571.4	07.36	14.2
37019							780228	001.55	023.93	0557.7	03.30	14.8
37020							780306	002.39	023.04	0337.1	03.22	23.3
37021							780307	004.07	028.75	0295.5	02.64	25.1
37022							780307	002.69	049.68	0284.0	02.68	23.9
37023							780317	002.21	070.14	0523.6	00.78	13.8
37024							780313	004.25	035.04	0596.8	07.09	13.3
37025							780315	002.73	045.82	0570.1	04.21	13.6
37026							780316	001.79	045.94	0568.0	01.40	13.7
37027							780317	001.71	027.87	0557.5	01.86	14.6
37028							780321	002.30	072.69	0609.7	02.79	12.1
37029							780322	002.73	034.01	0564.6	03.40	14.1
37030							780323	011.54	008.09	0617.5	06.04	13.3
37031							780327	001.35	033.46	0620.0	02.32	13.1

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1972 - 74 EUGENE

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
37032							780328	001.05	013.26	0892.2	02.81	09.7
37033							780331	001.69	022.52	0378.1	01.93	21.2
37034							780403	005.43	092.40	0486.4	03.19	13.7
37035							780405	002.53	043.37	0501.8	02.86	15.5
37036							780412	001.63	015.66	0555.3	06.73	15.2
37037							780412	002.96	086.27	0542.5	01.13	12.9
37038							780807	003.12	119.94	0254.2	00.89	18.9
37039												
37040												
47001							771101	003.30	070.24	0302.5	01.97	21.0
47002							771114	002.49	052.57	0357.3	04.99	19.8
47003							771109	002.23	028.48	0382.0	07.01	20.4
47004							771117	002.58	047.98	0367.7	06.03	19.7
47005							771117	001.97	017.40	0551.5	02.54	15.2
47006							771219	002.23	028.49	0476.9	02.30	16.8
47007							771230	002.02	021.58	0291.1	02.59	26.8
47008							780123	002.73	030.22	0469.5	03.65	16.9
47009							780201	002.52	034.67	0350.5	01.90	21.5
47010							780203	003.04	048.52	0381.0	01.24	19.0
47011							780205	001.64	012.95	0326.5	05.19	25.2
47012							780215	002.99	042.29	0345.9	03.61	21.0
47013							780209	002.13	053.96	0409.1	02.69	17.7
47014							780227	003.68	015.16	0403.0	02.66	20.2
47015							780226	001.38	009.52	0579.2	04.80	12.7
47016							780308	001.58	005.13	0772.2	03.04	11.3
47017							780307	004.57	029.81	0539.3	05.94	14.8
47018							780321	001.83	069.87	0504.5	01.41	14.5
47019							780313	001.19	011.94	0383.9	03.28	21.8
47020							780315	002.71	010.45	0264.7	02.22	30.6
47021							780325	002.38	015.44	0451.2	01.82	18.4
47022							780321	003.77	044.62	0244.6	01.96	27.1
47023							780324	004.64	041.01	0266.3	02.13	25.7
47024							780324	001.80	009.33	0702.3	02.58	12.3
47025							780328	003.11	034.20	0292.2	02.36	24.9
47026							780328	002.32	067.58	0631.2	01.26	11.9
47027							780329	001.13	025.81	0662.7	01.71	12.5
47028							780331	001.20	004.42	0287.4	04.01	29.7
47029							780405	001.75	015.92	0420.5	01.31	19.7
47030							780410	004.47	042.77	0483.2	04.33	15.6
47031							780413	003.33	035.80	0511.2	04.48	15.3
47032							780519	004.37	120.49	0298.6	01.04	17.7

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 EUGENE

EPA NO	HTS						DEQ					
	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
58002							771004	001.51	039.60	0524.0	02.19	15.0
58003							771021	002.88	051.35	0345.1	02.71	20.4
58004							771020	002.20	008.90	0419.8	01.72	20.1
58005							771026	000.84	008.13	0394.3	06.67	21.6
58006							771102	001.29	010.04	0378.5	04.62	22.3
58007							771115	001.33	014.81	0474.6	02.99	17.7
58008							771116	000.83	005.38	0497.5	03.90	17.4
58009							771205	000.21	001.31	0400.6	03.87	22.0
58010							771206	000.70	018.01	0393.6	01.23	20.9
58011							771208	008.72	210.89	0413.3	00.69	11.5
58012							771209	001.06	000.38	0599.5	07.39	14.7
58013							771214	002.13	031.00	0366.0	03.60	21.0
58014							771215	001.27	003.56	0641.7	04.12	13.6
58015							771220	001.42	011.56	0300.1	02.99	27.5
58016							780117	001.19	007.93	0292.5	02.03	28.7
58017							771221	000.62	004.18	0277.4	01.79	31.0
58018							780104	001.12	016.52	0269.1	01.61	29.7
58019							780105	001.23	004.82	0279.6	02.36	30.5
58020							780120	000.71	006.53	0338.7	01.78	25.3
58021							780119	001.45	016.62	0693.6	01.72	12.2
58022							780120	000.95	004.20	0293.0	02.18	29.3
58023							780202	001.98	014.90	0349.0	02.05	23.4
58024							780131	002.29	047.47	0634.2	01.60	12.4
58025							780131	001.77	028.59	0451.5	03.49	17.7
58026							780202	003.34	075.24	0276.1	00.78	21.9
58027							780207	002.66	060.81	0528.8	03.28	14.0
58028							780214	000.49	001.73	0517.0	01.77	17.0
58029							780223	002.95	023.49	0509.9	02.26	15.9
58030							780222	002.75	051.33	0618.2	03.70	12.5
58031							780224	002.73	068.53	0521.1	01.41	13.9
58032							780303	000.77	007.05	0437.6	02.56	19.7
58033							780303	000.56	004.81	0341.7	02.18	25.3
58034							780515	003.60	049.93	0565.9	04.69	13.5
58035												
58036												
58037												
58119												
68001							770923	003.17	003.11	0465.6	01.38	18.5
68002							771007	001.51	002.37	0353.8	03.74	24.5
68003							771012	002.01	016.60	0382.2	02.17	21.4
68004							771013	001.04	026.01	0608.9	02.45	13.6
68005							771025	000.83	002.20	0426.2	02.43	20.5
68006							771025	002.28	022.25	0382.2	07.93	20.9
68007							771109	000.89	003.00	0447.2	03.30	19.5
68008							771115	000.57	002.10	0357.3	04.71	24.5
68009							771121	001.50	001.76	0485.9	02.88	17.6
68010							771128	002.97	064.77	0383.4	01.76	17.9
68011							771128	000.35	000.90	0325.6	01.10	27.0
68012							771207	000.95	000.27	0562.0	09.04	15.7
68013							771213	001.64	021.29	0277.1	03.69	28.1
68014							771215	000.62	002.30	0629.4	03.21	14.0
68015							771221	001.04	001.81	0538.4	03.33	16.3
68016							771227	000.67	003.28	0290.6	01.82	29.8
68017							771229	000.54	005.50	0457.6	02.87	19.0
68018							771230	000.76	003.11	0289.2	01.57	29.9
68019							780104	001.03	003.56	0290.4	02.14	29.6
68020							780112	001.02	017.35	0335.8	02.54	24.2
68021							780111	001.03	014.07	0297.8	02.85	27.4
68022							780112	000.79	000.61	0629.4	01.86	14.0
68023							780117	001.58	011.04	0316.7	03.17	26.2
68024							780120	001.66	006.50	0297.9	03.09	28.3
68025							780130	001.05	013.15	0353.0	01.09	23.5
68026							780202	001.38	013.77	0403.5	02.35	20.6
68027							780208	002.33	021.66	0458.5	02.65	17.7
68028							780207	001.10	009.55	0323.0	02.60	26.0
68029							780208	000.56	001.08	0596.1	03.06	14.8
68030							780209	001.04	024.28	0296.9	02.19	26.2
68031							780209	001.66	030.43	0391.2	02.92	20.0
68032							780210	000.91	024.00	0305.9	01.90	25.6
68033							780210	000.67	003.51	0500.2	02.99	17.5
68034							780213	001.60	025.38	0260.9	01.88	29.0
68035							780217	002.18	042.33	0395.1	07.88	18.9

APPENDIX D -- FEDERAL SHORT CYCLE TEST RESULTS

1975 - 77 EUGENE

	HTS						DEQ					
EPA NO	DATE	HC	CO	CO2	NOX	MPG	DATE	HC	CO	CO2	NOX	MPG
68036							780217	001.01	005.51	0288.9	02.11	29.5
68037							780217	000.48	001.08	0498.7	06.85	17.7
68038							780223	003.25	092.48	0552.4	03.77	12.5
68039							780309	000.46	007.63	0405.4	01.99	21.1
68040							780309	001.27	021.30	0603.9	02.73	13.8
68041							780324	001.17	001.63	0351.8	01.50	24.8
68042							780515	000.24	003.78	0553.8	01.66	15.8
68043							780519	003.21	081.59	0543.0	00.85	13.0
68044												
68045												
68046												
68047												
68058												
68082												
68083												
68084												
68085												
68086												
78001							771028	001.57	014.68	0462.3	03.42	18.1
78002							771028	000.18	000.81	0532.1	01.40	16.6
78003							771104	001.75	033.23	0246.3	00.93	29.2
78004							771130	001.34	023.43	0408.7	02.81	19.7
78005							771229	001.25	009.13	0290.5	04.13	26.7
78006							780105	002.55	037.55	0375.5	05.68	20.0
78007							780110	001.02	004.79	0290.0	00.91	29.5
78008							780113	001.38	015.55	0266.5	01.19	30.0
78009							780118	005.15	046.80	0412.4	02.36	17.7
78010							780119	000.39	001.92	0492.6	01.69	17.8
78011							780123	000.34	000.04	0596.6	01.80	14.8
78012							780201	000.59	011.42	0360.4	01.37	23.3
78013							780127	001.26	011.87	0415.3	01.47	20.3
78014							780127	000.41	008.86	0389.1	01.51	21.9
78015							780210	000.38	001.81	0517.4	01.77	17.0
78016							780214	000.37	000.92	0637.0	02.24	13.9
78017							780217	000.17	000.30	0468.1	02.98	18.9
78016							780217	002.85	040.06	0461.2	00.73	16.6
78019							780222	000.28	001.31	0505.1	01.87	17.5
78020							780223	002.98	040.61	0432.0	01.54	17.5
78021							780228	000.52	000.06	0507.9	02.67	17.4
78022							780301	000.25	000.31	0502.6	02.51	17.6
78023							780301	000.45	000.41	0484.4	02.83	18.2
78024							780301	000.44	000.58	0527.7	02.31	16.7
78025							780302	000.19	000.05	0554.1	01.34	16.0
78026							780302	003.11	036.67	0491.5	02.69	15.9
78027							780308	000.30	000.37	0473.7	01.41	18.7
78028							780322	000.74	009.91	0280.5	02.29	29.7
78029							780309	002.72	041.82	0482.4	01.33	15.9
78030							780313	000.28	000.48	0509.8	01.45	17.3
78031							780414	002.32	027.89	0369.8	01.42	21.1
78032												
78033												
78034												
78035												
78036												

APPENDIX E - FTP, HFET AND HS FTP TEST RESULTS

Legend

ODOM - Odometer

HC - Hydrocarbon Emissions in Grams per Mile

CO - Carbon Monoxide Emissions in Grams per Mile

CO_2 - Carbon Dioxide Emissions in Grams per Mile

NO_x - Oxides of Nitrogen (uncorrected) Emissions in Grams per Mile

NO_xC - Oxides of Nitrogen Emission Corrected for Humidity in Grams per mile

MPG - Miles per Gallon Calculated by the Carbon Balance Method

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

	S			FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
23003	0	771004	039515	001.86	023.05	0398.7	04.93	04.90	20.1	000.87	006.74	0314.0	06.99	27.09	002.73	014.28	0363.5	04.95	04.93	22.6
23003	1	780321	041746	002.05	025.81	0418.2	05.16	04.45	19.1	000.85	007.35	0327.3	07.14	25.97	001.88	014.54	0382.4	05.30	04.35	21.5
23003	2	780602	043087	001.94	024.12	0395.4	04.43	04.11	20.2	000.99	008.35	0301.3	05.96	27.93	003.51	017.00	0367.5	04.28	03.97	21.8
23003	3	780817	044523	002.55	025.51	0407.4	04.48	04.48	19.5	001.02	007.53	0313.4	06.32	27.00	002.37	018.33	0374.5	04.11	04.05	21.5
23003	4	781108	045518	001.60	022.55	0398.7	04.00	03.53	20.2	000.79	007.86	0304.8	06.07	27.75	002.36	015.62	0388.9	04.29	03.83	21.3
23004	0	770927	057061	002.77	037.44	0681.7	03.46	03.72	11.8	001.43	007.34	0447.9	05.05	19.12	001.14	025.67	0647.2	03.14	03.46	12.8
23004	1	780403	060176	002.86	040.28	0699.2	04.13	03.51	11.5	001.48	007.65	0490.3	06.22	17.49	002.54	029.38	0699.3	04.13	03.52	11.7
23004	2	780627	061171	002.43	040.25	0733.3	03.82	04.11	11.0	001.45	007.36	0478.3	05.90	17.93	001.96	026.87	0652.6	03.80	03.90	12.6
23004	3	780915	062585	002.31	034.56	0736.9	04.20	03.70	11.1	001.37	007.54	0474.8	06.53	18.06	001.87	031.71	0685.9	04.09	03.59	11.9
23004	4	781211	063992	002.45	039.85	0709.5	03.87	03.29	11.4	001.19	006.87	0473.6	05.34	18.17	001.92	029.30	0655.0	03.75	03.17	12.5
23005	0	771103	052965	001.32	018.40	0472.7	02.05	01.74	17.5	000.16	004.91	0362.7	01.79	23.91	003.12	015.51	0425.7	01.67	01.41	19.2
23005	1	780327	055859	001.04	018.24	0472.0	02.11	01.94	17.6	000.20	006.18	0384.2	01.72	22.48	001.58	018.76	0437.6	01.35	01.23	18.7
23005	2	780612	057033	000.69	016.75	0472.2	02.02	01.90	17.7	000.17	005.21	0356.1	01.89	24.30	000.65	011.79	0417.8	02.02	01.92	20.2
23005	3	780905	058345	001.17	020.75	0450.2	01.80	01.57	18.2	000.20	006.86	0364.0	01.50	23.62	001.83	021.91	0441.2	01.13	01.06	18.4
23005	4	781211	060097	001.55	018.72	0443.2	02.41	02.06	18.6	000.14	005.08	0351.3	02.26	24.66	003.97	021.91	0412.7	01.84	01.56	19.2
23007	0	771025	041423	002.47	009.42	0816.6	04.96	04.69	10.6	001.53	003.26	0502.6	06.09	17.30	002.17	005.56	0775.7	05.04	04.82	11.2
23007	1	780330	044111	001.77	025.81	0786.4	05.95	05.44	10.7	000.81	006.88	0527.4	07.77	16.40	001.43	017.49	0757.9	05.30	05.33	11.2
23007	2	780620	047014	001.70	023.13	0774.4	05.94	05.53	10.9	000.85	004.65	0513.9	08.03	16.93	001.51	011.71	0750.0	06.05	05.64	11.4
23007	3	780901	048363	001.95	035.99	0770.5	05.04	04.92	10.6	000.75	018.24	0500.9	06.10	16.67	001.82	037.56	0748.9	06.75	06.87	10.3
23007	4	781129	050819	001.45	012.14	0801.6	06.40	06.18	10.7	000.87	003.89	0528.0	09.25	16.52	001.31	006.54	0765.2	06.62	06.31	11.3
23008	0	771026	074360	002.12	023.54	0356.5	04.95	04.35	22.2	001.41	007.10	0279.8	06.19	30.02	001.99	021.98	0327.4	04.89	04.29	24.0
23008	1	780322	078750	002.08	026.38	0327.2	04.78	04.24	23.5	001.33	012.58	0273.8	05.34	29.78	001.93	021.87	0300.0	04.41	03.91	26.0
23008	2	780609	081357	002.52	026.73	0360.1	05.21	04.88	21.6	000.93	008.65	0274.7	02.99	30.45	001.94	024.05	0324.3	02.89	02.66	24.0
23008	3	780828	083886	001.60	021.65	0371.7	03.37	03.33	21.6	000.79	007.30	0306.8	03.59	27.65	001.20	016.07	0350.7	03.00	02.93	23.3
23008	4	781127	087403	002.29	024.94	0322.5	04.91	04.17	24.0	001.32	008.60	0262.2	06.09	31.68	002.02	023.10	0295.5	04.77	04.06	26.2
23009	0	771028	057927	002.99	017.00	0394.3	03.42	03.01	20.6	001.66	006.67	0274.6	04.75	30.54	003.47	011.33	0364.9	03.08	02.78	22.5
23009	1	780325	059719	002.71	043.79	0373.9	02.22	01.98	19.7	001.58	019.64	0289.8	03.03	27.23	002.16	031.70	0354.2	02.13	01.88	21.5
23009	2	780612	061155	002.82	051.13	0377.3	01.84	01.81	19.0	001.68	023.72	0280.7	02.65	27.43	002.30	037.92	0362.8	01.97	01.84	20.6
23009	3	780927	064074	002.31	043.22	0338.8	04.44	03.94	21.4	000.95	008.38	0285.8	05.34	29.37	001.97	038.02	0319.2	04.03	03.58	23.0
23009	4	781221	065643	002.78	046.83	0362.0	04.58	04.06	20.0	001.19	008.25	0291.8	05.34	28.74	002.77	043.56	0348.4	04.16	03.72	20.8
23010	0	771108	027143	001.81	025.20	0358.6	05.81	05.00	22.0	001.21	020.97	0346.1	07.90	23.16	001.88	018.47	0396.9	06.61	05.70	20.5
23010	1	780327	027929	002.80	043.77	0433.1	06.78	05.16	17.4	001.72	029.06	0359.1	07.63	21.62	002.31	022.16	0408.8	06.55	05.97	19.6
23010	2	780612	029178	002.06	033.30	0422.0	07.01	06.58	18.4	001.17	022.35	0338.9	08.39	23.48	001.99	020.54	0419.6	07.57	07.15	19.3
23010	3	780828	029793	002.42	044.79	0416.4	06.66	06.44	17.9	001.34	023.82	0340.9	08.28	23.18	002.03	023.90	0407.1	06.75	06.52	19.6
23010	4	781127	030649	002.96	051.82	0386.3	06.21	05.28	19.6	001.40	026.86	0319.2	07.48	24.24	002.26	033.58	0374.9	06.11	05.26	20.3
23011	0	771108	013155	001.94	014.85	0425.6	06.61	05.58	19.5	001.20	009.95	0326.5	07.19	25.63	001.98	010.64	0398.0	05.57	04.84	21.0
23011	1	780327	013603	002.38	023.88	0422.0	06.07	05.69	19.0	001.46	017.22	0350.2	07.32	23.22	001.95	014.99	0404.9	05.55	05.12	20.4
23011	2	780616	014073	001.87	017.96	0410.9	05.90	05.24	19.9	001.20	014.45	0315.6	06.93	25.92	001.95	012.70	0387.7	05.33	04.75	21.4
23011	3	780905	014514	001.84	020.74	0433.9	06.53	06.15	19.8	001.26	018.06	0351.8	07.52	23.08	002.01	015.97	0415.5	05.76	05.37	19.8
23011	4	781208	014889	001.86	018.19	0408.1	06.46	05.26	20.0	001.16	015.49	0330.8	07.54	24.71	001.55	012.04	0384.3	05.50	04.56	21.7
23012	0	771110	116183	004.07	067.05	0541.8	04.31	03.92	13.4	002.26	023.48	0410.8	06.76	19.49	002.87	027.52	0538.2	05.60	05.03	15.0
23012	1	780327	118133	005.10	099.39	0526.3	03.58	03.27	12.7	002.41	025.15	0432.9	06.83	18.47	003.10	034.17	0541.0	10.17	09.33	14.6
23012	2	780609	118929	004.17	076.25	0510.6	03.64	03.33	13.8	002.07	022.62	0391.5	06.40	20.45	003.07	030.77	0513.5	05.30	04.81	15.5
23012	3	780825	119879	005.18	097.24	0485.4	02.24	02.16	13.5	002.23	026.92	0381.5	04.05	20.58	003.70	045.99	0502.3	03.50	03.39	15.1
23012	4	781121	120648	005.68	102.90	0466.2	02.60	02.11	13.7	002.55	028.48	0401.1	04.98	19.54	004.50	057.72	0472.0	03.91	03.17	15.3
23013	0	771114	033829	002.34	014.26	0558.0	05.41	05.08	15.1	001.18	004.28	0399.2	08.95	21.65	001.93	007.73	0515.0	05.02	04.65	16.6
23014	0	771129	097002	002.23	043.91	0741.9	02.12	01.85	10.8	000.43	007.62	0553.8	02.40	15.64	001.84	036.24	0701.8	02.06	01.80	11.6
23014	1	780405	098879	001.77	056.86	0824.2	02.63	02.35	09.5	000.35	011.53	0617.3	03.11	13.93	001.30	037.37	0787.2	02.55	02.20	10.6
23014	2	780629	100273	001.75	053.39	0791.5	02.09	02.08	10.1	000.38	009.45	0606.6	02.43	14.24	001.62	039.96	0729.4	01.95	01.96	11.1
23014	3	780920	101954	002.77	030.11	0610.8	02.86	02.54	13.3	001.42	008.99	0450.6	05.05	18.90	002.43	026.11	0570.5	02.42	02.23	14.3
23014	4	781213	103085	003.02	035.30	0653.0	03.93	03.25	12.3	001.66	010.94	0440.6	06.02	19.15	002.95	023.78	0618.7	03.80	03.14	13.3
23015	0	780105	069171	002.88	019.53	0498.2	05.04	04.47	16.5	001.45	005.69	0352.7	05.95	24.21	002.41	008.83	0474.3	04.73	04.26	17.8
23015	1	780407	073267	003.20	041.94	0558.0	05.81	05.17	14.0	001.38	007.92	0554.5	06.77	15.55	002.85	031.88	0535.1	05.53	04.87	14.7
23015	2	780622	075916	002.92	035.56	0535.2	05.39	05.07	14.8	001.42	007.78	0387.1	05.97	21.96	002.54	028.49	0532.3	05.19	04.97	15.1
23015	3	780913	079645	003.38	037.74	0557.1	04.91	04.71	14.1	001.72	007.74	0393.0	05.82	21.60	003.21	027.47	0537.8	04.51	04.41	15.0
23015	4	781204	082005	004.74	040.21	0527.4	04.76	03.94	14.6	002.94	006.77	0390.9	05.70	21.58	004.35	026.99	0506.4	04.57	03.97	15.7
23016	0	771214	077018	007.19	108.94	0564.3	06.41	06.02	11.7	002.62	031.66	0437.9	07.20	17.88	003.95	065.97	0556.6	06.87	06.39	13.1
23016	1	780407	080590	006.16	099.72	0579.2	06.96	05.08	11.7	002.20	026.66	0457.1	08.62	17.53	003.49	059.85	0583.8	08.06	07.02	12.8
23016	2	780621	083275	005.72	083.75	0591.3	06.46	06.09	12.0	002.23	028.50	0470.4	08.41	16.98	003.44	048.95	0584.0	06.90	06.47	13.2
23016	3	780907	086030	005.27	071.20	0627.1	08.05	07.49	11.7	002.28	030.39	0479.7	08.24	16.59	003.34	041.71	0610.8	07.70	07.20	12.9
23016	4	781206	087582	005.75	089.78	0608.2	07.79	06.58	11.6	002.62	035.95	0474.4	10.01	16.45	003.45	049.69	0609.2	08.38	07.08	12.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

EPA NO	SEQ	DATE	JDUM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
23017	0	771219	102989	003.10	034.00	0320.8	03.11	02.64	21.1	001.04	007.09	0234.4	04.70	35.63	002.61	026.74	0316.1	03.01	02.48	24.2
23017	1	780501	108681	003.74	045.88	0327.3	03.37	03.32	21.6	001.38	009.01	0250.9	04.87	33.03	003.57	043.33	0304.6	03.15	02.78	23.0
23017	2	780721	113451	004.79	050.85	0305.1	02.01	02.23	22.2	000.99	010.55	0241.3	03.36	33.97	003.31	040.93	0302.6	01.91	02.36	23.5
23017	3	781013	117265	003.05	034.70	0345.3	02.99	02.61	21.7	000.82	005.85	0256.2	04.54	33.09	002.35	027.80	0340.4	02.72	02.38	22.4
23017	4	790221	119280	007.12	079.88	0272.9	01.10	00.94	21.1	001.89	043.76	0203.6	01.45	31.86	006.30	077.80	0277.6	01.15	00.98	21.1
23018	0	771228	034315	001.14	006.86	0629.1	02.62	02.12	13.8	000.28	003.13	0447.4	03.10	19.57	001.05	004.37	0579.6	02.52	02.11	15.0
23018	1	780502	035429	001.35	007.72	0662.7	02.87	02.56	13.1	000.29	003.30	0435.6	03.52	20.08	000.98	003.97	0573.3	02.85	02.52	15.2
23018	2	780809	036573	001.74	009.20	0646.0	02.37	02.55	13.3	000.37	003.03	0450.6	02.81	19.42	001.12	004.44	0584.0	02.29	02.43	14.9
23018	3	781026	037487	001.69	010.07	0530.1	03.90	03.35	16.1	002.65	003.65	0385.4	05.25	22.19	003.98	007.51	0491.3	03.86	03.27	17.1
23018	4	790202	038506	003.80	020.54	0470.6	07.01	05.59	17.2	002.45	003.40	0371.8	10.05	23.04	003.52	015.60	0444.9	06.38	05.36	18.4
23019	0	780221	049845	004.69	055.77	0334.4	02.43	02.17	20.3	001.03	011.63	0261.0	03.30	31.39	004.86	053.21	0311.8	01.80	01.60	21.5
23019	1	780531	051953	004.59	058.55	0307.7	02.02	01.70	21.4	001.39	013.98	0239.6	02.87	33.46	003.84	053.87	0305.9	01.36	01.57	22.3
23019	2	780821	053707	004.02	051.17	0352.5	02.28	02.19	19.9	000.89	010.87	0291.1	04.30	28.52	003.21	047.97	0343.8	02.17	02.06	20.6
23019	3	781113	055664	004.05	055.81	0332.5	02.34	01.89	20.5	000.76	010.16	0259.7	03.57	31.89	003.45	050.33	0324.0	02.25	01.83	21.4
23019	4	790202	056942	003.42	053.00	0325.6	02.18	01.75	21.1	000.70	009.72	0259.0	03.39	32.07	002.79	048.14	0326.2	02.10	01.69	21.5
23021	0	780124	092936	003.80	020.88	0722.6	05.08	04.25	11.6	001.10	004.55	0492.4	05.99	17.63	003.79	017.54	0678.4	05.03	04.19	12.3
23021	1	780428	096965	004.61	026.48	0725.3	04.44	04.23	11.3	001.68	004.58	0520.2	05.88	16.65	004.51	017.69	0671.0	04.33	04.13	12.4
23021	2	780725	101453	004.48	033.11	0693.1	04.21	04.49	11.7	001.61	005.98	0460.5	04.85	18.67	004.24	022.51	0637.0	04.20	04.42	12.9
23021	3	781020	105822	004.25	026.90	0673.8	04.92	04.48	12.2	002.00	007.44	0494.5	05.71	17.30	004.10	024.12	0629.3	04.92	04.52	13.0
23021	4	790123	108983	006.34	047.64	0617.6	04.51	03.75	12.4	001.96	007.23	0446.8	05.65	19.10	005.26	025.60	0596.0	04.58	03.91	13.5
23022	0	780128	047887	003.42	046.19	0444.8	02.03	01.76	16.8	001.24	019.45	0289.0	02.19	27.41	003.12	036.42	0432.9	01.81	01.54	17.7
23022	1	780426	049205	003.42	038.41	0451.6	02.48	02.28	17.0	001.39	017.43	0326.0	03.50	24.85	002.66	027.32	0436.8	02.27	02.10	18.1
23022	2	780802	051194	004.28	037.98	0434.3	02.16	02.07	17.5	001.22	017.27	0278.7	02.41	28.63	003.69	032.51	0421.7	02.04	01.93	18.3
23022	3	781025	054494	003.39	044.08	0455.6	02.75	02.30	16.6	001.21	021.07	0293.5	03.28	26.84	002.92	037.16	0427.1	02.30	01.90	17.9
23022	4	790126	057027	002.54	035.32	0434.0	02.34	01.96	17.8	001.02	015.87	0274.5	02.65	29.30	002.06	022.66	0422.2	02.16	01.81	19.0
23023	0	780209	023594	002.14	023.63	0410.3	01.99	01.85	19.5	000.43	005.42	0292.9	02.51	29.29	001.90	020.25	0385.3	02.00	01.84	20.9
23023	1	780510	024248	001.94	022.73	0430.2	02.11	01.83	19.8	000.38	005.91	0313.6	02.61	27.36	001.43	014.60	0416.7	02.34	01.77	19.3
23023	2	780731	024584	001.61	017.73	0435.3	01.74	01.74	18.9	000.39	005.30	0296.7	02.14	28.96	001.44	011.48	0414.4	01.71	01.66	20.2
23023	3	781025	024989	001.83	019.07	0438.2	02.24	01.90	18.7	000.33	005.26	0317.4	02.93	27.14	001.62	013.80	0421.8	02.23	01.87	19.7
23023	4	790124	025607	001.55	019.81	0439.8	01.82	01.55	18.6	000.42	005.83	0309.2	02.31	27.74	001.85	016.68	0409.4	01.75	01.50	20.0
23024	0	780208	084684	003.10	022.71	0637.8	04.01	03.70	13.0	001.50	007.23	0456.5	06.82	18.76	002.29	016.84	0627.0	04.30	04.06	13.4
23024	1	780508	086227	002.26	020.01	0665.7	03.52	03.17	12.6	000.91	009.40	0511.4	03.97	16.76	002.00	023.24	0610.4	03.12	02.82	13.5
23024	2	780731	087687	002.65	019.32	0659.3	03.31	03.16	12.7	000.74	005.22	0491.5	03.48	17.66	002.25	013.40	0634.8	03.13	03.02	13.3
23024	3	781020	088364	026.90	029.13	0716.1	03.81	03.54	10.5	002.83	014.09	0503.9	03.47	16.58	043.93	015.10	0803.2	04.91	04.55	13.1
23024	4	790125	089099	002.75	027.90	0639.3	04.40	03.65	12.8	001.94	023.85	0427.8	06.40	18.81	002.59	040.60	0593.8	04.01	03.37	13.3
23025	0	780216	036565	003.34	058.93	0382.9	05.41	04.87	18.2	001.63	026.02	0327.7	06.92	23.72	002.43	040.98	0365.0	04.99	04.56	20.2
23025	1	780508	038081	002.95	060.36	0408.3	05.98	05.25	17.3	001.44	027.58	0343.9	07.67	22.63	002.51	044.96	0378.4	05.30	04.63	19.4
23025	2	780728	039449	003.10	062.09	0396.9	05.11	05.20	17.6	001.54	025.85	0351.8	07.48	22.32	003.12	052.58	0382.3	04.60	04.83	18.6
23025	3	781018	041218	003.38	070.11	0392.8	05.28	04.89	17.3	001.44	028.86	0344.6	07.50	22.48	002.51	052.03	0379.4	04.87	04.47	18.9
23025	4	790125	042927	002.98	062.78	0374.4	05.53	04.65	18.4	001.40	026.29	0338.6	07.73	23.07	002.59	048.39	0359.3	05.04	04.24	19.9
23026	0	780217	062501	005.40	041.14	0279.6	02.71	02.51	24.5	000.91	009.99	0216.6	04.31	37.71	003.82	030.39	0273.1	02.55	02.35	26.6
23026	1	780510	064097	003.56	030.99	0296.5	03.15	02.57	24.9	000.34	007.82	0229.8	04.67	36.24	003.39	025.96	0279.5	02.71	02.29	25.7
23026	2	780731	064760	002.26	043.08	0340.9	01.80	01.86	21.3	000.68	017.89	0245.9	02.75	32.11	002.07	037.81	0321.9	01.70	01.69	22.8
23026	3	781019	064993	003.46	051.37	0302.4	02.22	02.30	22.5	000.71	016.43	0235.1	03.19	33.69	002.10	044.23	0301.8	02.19	01.98	23.4
23026	4	790129	067241	002.55	047.50	0306.2	01.99	01.59	22.8	000.71	014.42	0226.6	02.22	35.26	001.86	038.45	0309.0	01.93	01.54	23.6
23027	0	780222	036530	002.56	015.79	0330.6	03.14	02.73	24.4	000.65	003.40	0267.4	03.69	32.27	002.11	012.33	0321.5	02.94	02.58	25.5
23027	1	780522	036666	002.90	015.17	0337.3	03.32	02.87	23.9	000.80	003.33	0253.6	04.03	33.94	002.50	011.65	0329.8	03.35	02.52	24.7
23027	2	780810	037258	002.70	014.54	0328.0	02.59	02.43	24.7	000.60	003.41	0243.5	03.12	35.36	002.15	012.14	0313.3	02.73	02.55	26.1
23027	3	781101	040795	002.52	015.31	0336.5	03.78	03.18	24.1	000.77	003.35	0246.5	04.51	34.88	002.20	012.60	0324.2	03.79	03.17	25.2
23027	4	790206	045682	002.55	015.10	0313.7	03.86	03.48	25.7	000.97	003.00	0228.6	05.31	37.52	002.66	014.38	0303.1	03.77	03.40	26.5
23028	0	780228	052861	025.59	052.10	0344.4	04.56	04.28	17.5	002.03	011.00	0270.0	06.18	30.19	003.81	011.98	0331.6	05.56	05.29	24.4
23028	1	780515	053695	005.83	022.51	0369.7	05.53	04.79	23.9	001.76	013.95	0290.2	05.89	27.86	003.13	012.12	0349.9	05.26	04.71	23.4
23028	2	780807	054597	003.89	022.23	0377.8	05.02	05.48	20.9	001.94	013.50	0293.8	05.97	27.61	003.55	015.33	0352.8	04.95	05.31	22.8
23028	3	781030	055683	006.47	019.51	0382.7	05.84	05.08	20.4	002.33	011.40	0286.8	06.78	28.50	003.28	009.30	0365.4	05.92	05.17	22.7
23028	4	790126	056710	004.22	017.93	0351.9	04.86	04.07	22.5	002.23	014.34	0269.4	05.28	29.66	003.53	011.29	0328.7	04.72	03.96	24.7
23029	0	780303	081032	004.58	027.79	0422.9	02.96	02.57	18.4	001.00	014.15	0288.2	04.18	28.28	002.87	027.91	0398.4	02.90	02.55	19.6
23029	1	780525	082150	002.20	025.95	0475.9	03.22	02.92	15.9	001.26	014.77	0301.8	04.54	26.96	002.34	024.25	0447.8	02.38	02.74	17.3
23029	2	780815	083627	001.73	020.10	0420.8	02.30	02.23	19.4	000.45	013.05	0287.0	03.58	28.71	001.36	017.59	0397.4	02.06	01.97	20.6
23029	3	781128	084751	002.47	028.04	0415.7	02.10	01.86	19.0	000.53	015.21	0284.4	03.27	28.60	002.57	028.23	0403.2	01.93	01.71	19.4
23029	4	790220	085929	003.74	044.38	0417.8	02.17	01.87	17.8	001.38	023.22	0285.9	02.88	27.22	003.88	048.82	0393.1	01.46	01.26	18.3
23030	0	780227	084932	002.68	040.44	0653.4	07.13	07.06	12.2	001.28	007.61	0469.8	08.69	18.26	002.00	014.87	0654.1	07.92	07.93	12.3
23030	1	780519	086200	002.57	038.28	0670.7	06.48	05.29	12.0	001.51	009.94	0469.7	08.19	18.09	002.52	017.03	0644.2	06.36	06.43	13.3
23030	2	780821	087363	002.89	043.97	0670.5	07.07	07.77	11.8	001.56	009.26	0458.4	08.21	18.56	002.39	018.80	0631.3	06.91	07.66	13.2
23030	3	781108	088258	002.53	037.15	0666.5	07.43	06.46	12.1	001.31	008.31	0457.7	09.05	18.67	002.09	018.07	0639.4	07.70	06.74	13.1
23030	4	790208	088982	002.51	036.78	0656.9	06.88	06.37	12.3	001.30	006.75	0443.1	08.00	19.37	001.92	014.47	0627.8	06.75	06.01	13.5

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

EPA NO	SEQ	DATE	ODOM	FTP						HFET					HS FTP					
				HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
23031	0	780301	114041	002.95	026.39	0646.1	08.42	07.07	12.7	001.68	010.14	0511.0	10.56	16.66	003.16	016.57	0626.7	08.60	07.28	13.3
23031	1	780523	115476	002.64	049.30	0633.1	07.68	06.53	13.2	001.57	008.62	0485.6	10.33	17.59	003.05	012.82	0587.7	07.44	06.46	14.3
23031	2	780810	117366	003.27	023.34	0641.1	07.96	07.90	12.9	001.95	010.99	0483.4	09.21	17.50	003.47	019.79	0622.8	07.63	07.93	13.3
23031	3	781031	118986	003.15	016.96	0632.5	09.48	08.30	13.3	002.41	007.40	0483.4	11.61	17.64	003.44	014.59	0594.0	09.38	07.92	14.1
23031	4	790130	120456	006.67	017.43	0652.3	10.51	08.38	12.6	006.95	004.93	0485.7	14.48	17.20	003.81	013.18	0598.9	09.53	07.70	14.0
23032	0	780228	088151	001.97	034.76	0668.3	03.35	03.18	12.2	000.23	004.01	0517.0	03.25	16.92	001.41	020.50	0623.7	03.20	03.03	13.4
23032	1	780530	091932	001.54	024.46	0675.7	03.60	03.02	12.3	000.23	003.28	0537.2	03.45	16.33	001.40	020.86	0615.2	03.25	02.74	13.5
23032	2	780821	094577	001.92	026.34	0654.6	03.33	03.18	12.6	000.43	005.07	0511.4	03.20	17.03	001.59	023.15	0632.8	03.35	03.23	13.1
23032	3	781113	096037	001.88	033.47	0668.7	03.45	02.79	12.2	000.31	004.46	0556.9	03.57	15.70	001.42	024.32	0635.7	03.42	02.78	13.0
23032	4	790220	098748	001.97	025.66	0658.4	03.46	02.88	12.6	000.66	011.16	0570.6	03.98	15.03	002.08	029.24	0593.5	03.26	02.75	13.7
23033	0	780302	028239	003.08	036.19	0715.1	06.61	06.26	11.3	001.21	006.50	0491.8	07.94	17.53	002.25	013.46	0689.6	06.98	06.63	12.3
23033	1	780522	029191	002.26	027.31	0674.8	05.28	04.47	12.2	001.13	005.34	0518.5	08.57	16.72	002.02	010.58	0716.6	05.48	05.52	11.9
23033	2	780811	030355	002.29	022.13	0707.6	05.91	05.95	11.8	001.20	005.58	0487.4	07.41	17.74	002.35	012.81	0678.0	05.96	05.97	12.5
23033	3	781101	031375	002.62	026.55	0728.2	07.11	05.92	11.4	001.10	005.60	0514.3	08.83	16.84	002.44	016.26	0722.7	08.26	06.86	11.7
23033	4	790131	032165	002.20	019.06	0674.2	06.45	05.12	12.5	000.98	004.60	0466.8	07.44	18.59	001.97	009.26	0659.6	06.22	04.94	13.0
23034	0	780302	067753	002.05	026.87	0793.5	04.94	04.16	10.5	001.46	009.79	0458.9	07.09	18.52	001.79	018.34	0758.8	05.07	04.29	11.1
23034	1	780523	069427	002.07	028.63	0808.4	04.77	04.20	10.3	001.47	007.70	0475.8	06.91	18.00	001.75	017.28	0785.7	04.73	04.15	10.8
23034	2	780809	071005	002.31	023.27	0778.6	04.13	04.17	10.8	001.53	008.33	0453.3	06.36	18.82	001.91	017.61	0744.4	04.10	03.95	11.4
23034	3	781031	072156	002.51	023.17	0804.3	05.07	04.29	10.4	001.69	011.22	0475.4	08.15	17.79	001.81	015.05	0780.6	05.29	04.49	10.9
23034	4	790201	073489	003.02	067.96	0715.8	05.15	04.12	10.7	001.57	011.35	0455.3	08.31	18.55	002.70	052.30	0714.3	05.39	04.29	11.0
23035	0	780303	030598	003.53	036.49	0559.5	04.35	03.91	14.1	001.78	012.93	0455.0	05.81	18.44	002.62	017.25	0552.4	04.58	04.23	15.0
23035	1	780523	037709	003.26	027.66	0552.0	03.69	03.18	14.6	001.57	012.77	0434.1	05.21	19.31	002.93	018.03	0522.1	03.74	03.25	15.3
23035	2	780823	045362	003.41	033.91	0526.2	04.30	04.14	15.0	001.79	013.40	0415.7	06.10	20.04	003.56	025.68	0506.7	04.27	04.13	15.8
23036	0	780306	058342	003.21	031.32	0643.0	05.72	04.94	12.6	001.66	010.49	0472.3	06.59	17.95	002.73	016.38	0598.8	05.60	04.85	14.0
23036	1	780526	061712	003.27	035.13	0645.8	04.37	03.79	12.5	001.31	011.83	0478.2	05.39	17.65	002.93	030.95	0613.8	04.11	03.84	13.2
23036	2	780828	065095	002.79	036.33	0636.0	04.00	04.22	12.6	001.70	015.48	0452.6	04.91	18.39	002.70	037.07	0601.3	03.62	03.81	13.2
23036	3	781128	068194	002.61	028.59	0616.2	04.20	03.54	13.2	001.44	010.51	0452.1	05.41	18.74	002.48	028.96	0586.1	04.13	03.59	13.3
23036	4	790216	069977	003.07	030.46	0594.7	04.17	03.66	13.6	001.69	010.32	0422.4	05.10	19.98	002.59	023.89	0558.6	03.94	03.46	14.6
23037	0	780306	079427	002.24	024.63	0369.7	02.83	02.42	21.3	001.35	012.64	0253.3	04.40	31.96	002.06	021.05	0353.6	02.70	02.33	22.5
23037	1	780601	081131	002.90	030.17	0333.3	02.53	02.23	22.7	001.56	018.52	0231.7	03.44	33.33	002.52	025.15	0325.4	02.24	01.99	23.7
23037	2	780912	083187	002.78	027.13	0350.4	02.71	02.48	22.1	001.58	013.93	0237.0	04.25	33.60	002.23	020.35	0338.6	02.62	02.41	23.4
23037	3	120478	085381	002.20	022.98	0344.2	02.32	02.03	22.9	001.35	015.53	0232.6	03.42	33.94	002.10	021.83	0329.0	02.17	01.89	23.9
23037	4	790220	089030	002.66	027.71	0371.9	02.72	02.36	20.9	001.27	012.41	0241.4	03.69	33.47	002.12	021.13	0351.6	02.44	02.12	22.6
23038	0	780307	085776	002.50	029.95	0704.4	07.13	06.57	11.7	001.29	009.94	0505.2	08.59	16.90	002.53	020.57	0656.0	07.20	06.68	12.7
23038	1	780531	087998	002.44	031.39	0675.0	07.09	05.13	12.1	001.17	010.56	0472.0	08.78	18.01	002.45	018.82	0634.7	07.37	06.13	13.2
23038	2	780829	090520	002.61	038.79	0681.2	05.46	05.97	11.8	001.24	014.04	0467.4	06.93	17.97	002.38	024.58	0632.2	05.67	06.33	13.0
23038	3	781204	093538	002.69	041.73	0659.6	06.14	05.12	12.1	001.15	011.10	0467.8	07.78	18.14	001.81	021.29	0617.6	05.27	05.21	13.5
23038	4	790226	095711	006.78	064.32	0676.2	05.84	05.15	11.1	001.27	015.46	0477.7	07.79	17.53	002.81	029.24	0661.3	07.00	06.09	12.3
23039	0	780308	082593	003.48	031.31	0352.8	03.88	03.52	21.5	001.65	010.08	0263.1	05.03	31.21	003.01	017.57	0342.1	03.92	03.54	23.3
23039	1	780530	087789	003.61	041.37	0383.5	02.67	02.30	19.3	001.38	012.35	0273.5	03.72	29.83	002.61	028.43	0375.3	02.56	02.25	23.7
23039	2	780901	091164	003.69	035.60	0380.9	02.17	02.28	19.8	001.34	012.61	0268.0	03.01	30.36	003.33	025.78	0359.2	02.09	02.25	21.6
23039	3	781201	093246	002.10	029.97	0467.0	01.52	01.34	17.0	000.56	009.46	0328.5	01.89	25.69	001.55	018.51	0450.2	01.56	01.37	18.3
23039	4	790216	094871	003.26	028.68	0364.4	03.59	03.13	21.1	001.43	009.66	0247.1	04.24	33.24	002.63	016.15	0345.2	03.27	02.84	23.4
23040	0	780309	075939	002.68	022.09	0331.9	05.92	05.10	23.6	001.21	004.38	0250.9	08.41	33.89	002.53	018.78	0312.2	05.84	05.02	25.3
23040	1	780530	077917	003.10	023.40	0305.3	05.18	04.42	25.2	001.54	005.26	0228.2	07.01	36.75	002.75	019.74	0291.1	04.96	04.19	26.3
23040	2	780814	079454	003.45	021.08	0317.7	02.80	02.71	24.5	000.78	002.84	0241.2	03.84	35.74	003.01	015.35	0300.0	01.71	01.65	26.5
23040	3	781103	080692	002.81	024.34	0306.5	03.35	03.13	25.1	001.02	003.36	0231.2	05.24	37.00	002.40	019.51	0297.3	03.31	03.08	26.6
23040	4	790207	082530	002.90	020.83	0286.5	03.58	03.12	27.0	000.92	003.33	0210.6	04.90	40.55	002.78	018.27	0270.3	03.48	03.02	28.8
23041	0	780309	054137	002.70	020.63	0628.0	04.73	04.02	13.3	002.06	009.48	0471.0	07.40	18.01	002.42	015.14	0619.3	04.85	04.15	13.6
23041	1	780630	059073	002.90	018.13	0624.0	04.46	04.35	13.4	002.20	008.47	0422.7	07.06	20.02	002.92	014.28	0571.2	04.35	04.22	14.7
23041	2	780922	059786	002.79	017.20	0676.1	04.19	03.81	12.5	002.22	008.57	0481.7	03.76	17.66	002.63	013.34	0657.5	04.39	04.00	12.9
23041	3	781213	060404	002.55	015.74	0624.6	04.55	03.59	13.5	001.91	006.42	0437.0	07.36	19.57	002.39	012.90	0593.4	04.48	03.61	14.2
23041	4	790228	061525	002.66	019.71	0618.5	04.38	03.82	13.5	001.79	007.55	0439.8	06.75	19.39	002.29	012.24	0566.3	04.07	03.54	14.9
23042	0	780321	040706	004.58	039.63	0636.8	03.27	02.99	12.4	001.35	008.39	0458.4	04.63	18.63	002.39	018.56	0609.6	03.23	02.94	13.7
23042	1	780512	043225	004.41	054.53	0663.1	02.66	02.45	11.5	000.37	011.88	0453.4	02.96	18.68	002.43	037.16	0631.9	02.59	02.36	12.7
23042	2	780825	045610	002.67	047.96	0692.0	02.72	02.62	11.4	000.69	008.85	0481.6	02.88	17.82	001.82	028.04	0663.2	02.54	02.57	12.4
23042	3	781121	048215	005.02	118.08	0611.0	03.06	02.49	13.9	001.10	016.39	0569.3	04.01	14.82	003.07	086.63	0584.1	02.87	02.33	12.1
23042	4	790209	050500	007.76	057.01	0498.8	03.05	02.71	14.5	003.67	019.55	0377.0	04.11	21.15	008.55	065.37	0460.1	02.52	02.31	15.0
23043	0	780328	047270	004.07	023.77	0519.1	06.79	06.13	09.1	001.84	013.31	0576.2	08.89	14.71	004.19	035.15	0832.8	05.70	05.13	09.8
23043	1	780614	048641	005.46	024.92	0917.7	06.03	05.55	09.1	001.97	014.19	0533.0	06.94	15.80	005.03	037.13	0842.8	05.20	04.81	09.5
23043	2	780907	049597	001.95	070.57	0855.7	04.73	04.38	09.1	000.53	010.64	0593.4	08.74	14.49	001.68	058.80	0848.2	06.10	05.55	09.3
23043	3	781205	051280	002.42	059.18	0825.8	04.92	04.23	09.6	000.61	013.02	0529.1	06.53	16.08	002.00	049.79	0787.4	04.51	03.90	10.1
23043	4	790222	051964	003.05	072.95	0820.6	04.31	03.72	09.4	000.75	023.79	0546.9	05.17	15.12	002.05	068.21	0766.6	03.35	02.85	10.0

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
23044	0	780407	124590	001.76	019.75	0442.5	07.11	06.19	18.5	000.72	004.46	0332.5	08.11	26.07	001.65	011.82	0413.0	06.77	05.93	20.3
23044	1	780628	125231	002.16	037.21	0401.1	04.64	04.94	19.0	000.92	005.52	0317.9	05.57	26.91	002.12	029.28	0378.4	04.32	04.71	20.5
23044	2	780927	126861	002.76	049.39	0376.2	04.88	04.51	19.2	001.37	006.69	0321.6	06.94	26.35	002.51	038.14	0360.7	05.04	04.67	20.6
23044	3	781220	129917	002.52	046.57	0374.5	05.02	04.19	19.5	001.03	005.59	0318.9	06.52	26.80	002.45	040.03	0350.0	04.90	04.09	21.0
23044	4	790308	133719	002.29	041.26	0372.9	05.34	04.55	19.9	000.91	005.25	0313.7	06.95	27.30	002.26	034.25	0355.0	05.28	04.50	21.3
23045	0	780411	068585	002.18	048.76	0530.8	02.73	02.34	14.4	001.37	030.38	0390.7	02.69	20.03	001.94	037.40	0515.4	02.69	02.31	15.2
23045	1	780628	072209	002.14	039.84	0456.6	02.42	02.31	15.9	001.79	040.33	0328.8	02.62	22.29	002.09	032.05	0429.3	02.37	02.23	18.2
23045	2	780921	075187	001.95	028.02	0476.7	03.23	02.89	16.8	001.01	014.88	0349.5	03.69	23.58	002.12	024.48	0448.1	02.89	02.57	17.9
23045	3	781219	078617	001.80	025.42	0473.3	03.67	03.02	17.1	001.14	017.97	0336.7	04.18	24.06	001.91	022.57	0444.9	03.43	02.81	18.2
23045	4	790314	080984	002.17	032.06	0495.3	03.65	03.23	15.0	001.21	014.43	0371.2	04.64	22.30	002.58	025.79	0477.3	03.62	03.22	16.8
23046	0	780413	059098	003.11	014.84	0338.4	04.30	04.07	23.9	001.06	002.91	0250.9	06.23	34.26	003.18	012.51	0316.6	04.30	04.05	25.6
23046	1	780718	060968	002.90	015.17	0348.9	04.23	04.30	23.2	000.96	003.07	0245.3	05.49	35.03	002.66	011.68	0309.7	03.59	03.49	26.3
23046	2	781009	062769	002.61	012.95	0332.2	03.74	03.61	24.6	000.86	002.79	0246.1	05.24	35.03	002.52	010.86	0312.2	03.62	03.47	26.2
23046	3	781227	063750	002.76	016.16	0356.3	04.97	04.15	22.7	000.79	002.84	0251.5	06.00	34.32	002.74	012.35	0337.8	04.57	03.91	24.2
23046	4	790312	065522	002.72	009.54	0332.9	03.81	03.27	24.9	000.93	002.43	0238.4	05.80	36.18	002.72	007.31	0312.9	03.75	03.22	26.6
23047	0	780414	051947	003.38	028.95	0565.1	03.81	03.52	14.3	001.78	010.40	0434.7	07.09	19.42	005.17	038.80	0519.8	03.48	03.21	14.8
23047	1	780719	054249	007.13	049.74	0578.9	03.30	03.55	13.0	001.69	014.59	0431.7	05.76	19.28	003.20	026.75	0544.1	03.26	03.31	14.8
23047	2	781012	056944	003.48	024.72	0563.8	04.04	03.65	14.5	001.57	007.58	0430.1	06.71	19.84	003.20	019.77	0531.7	03.84	03.46	15.4
23047	3	781227	058398	006.17	061.00	0530.0	04.02	03.32	13.7	001.62	012.99	0414.3	07.03	20.16	002.85	022.28	0512.2	03.72	03.08	15.9
23047	4	790321	059297	003.61	032.31	0567.2	04.16	03.48	14.1	001.79	013.20	0441.8	07.48	18.94	003.21	033.65	0535.2	03.71	03.13	14.8
23048	0	780417	084930	001.83	032.61	0888.1	06.77	06.22	09.4	000.78	004.95	0575.3	08.31	15.14	001.43	018.33	0841.8	06.74	06.17	10.1
23048	1	780712	087192	001.38	028.46	0851.8	05.80	05.14	09.8	000.55	004.18	0524.5	07.66	16.64	001.25	021.94	0848.1	06.55	06.93	10.3
23048	2	781004	090929	002.33	031.50	0638.0	07.40	06.82	12.8	001.18	005.11	0461.2	10.95	18.75	002.09	024.85	0606.9	07.47	06.89	13.5
23048	3	790117	096705	001.98	041.98	0779.1	06.27	05.11	10.4	001.08	004.81	0519.4	10.15	16.72	001.70	036.12	0747.5	06.80	05.55	10.9
23048	4	790316	098448	003.47	051.37	0671.4	07.17	06.31	11.6	001.82	013.33	0475.3	09.80	17.66	003.02	037.69	0649.4	07.18	06.39	12.3
33003	0	771007	025939	002.83	030.49	0672.3	04.70	04.73	12.2	001.63	009.24	0471.9	06.12	18.04	002.37	022.58	0647.2	04.17	04.13	12.8
33003	1	780315	027371	002.49	025.45	0684.5	05.48	04.68	12.1	001.45	008.43	0475.2	06.76	17.99	002.13	013.91	0667.3	05.57	04.63	12.7
33003	2	780526	027879	002.70	031.83	0678.1	05.37	04.80	12.0	001.87	016.69	0503.4	07.41	16.56	002.40	025.73	0651.5	05.26	04.70	12.6
33003	3	780821	033158	002.77	037.09	0705.1	05.47	05.69	11.5	001.64	016.11	0483.9	06.63	17.24	002.50	033.33	0666.5	04.32	04.83	12.2
33003	4	781120	034226	002.83	037.13	0687.1	05.61	04.52	11.8	001.84	015.07	0522.7	08.05	16.06	002.25	026.49	0638.8	05.08	04.12	12.9
33004	0	770930	045726	001.95	011.72	0711.1	02.69	02.79	12.1	001.14	002.75	0475.0	03.68	18.35	001.49	004.48	0679.0	02.73	02.80	12.8
33004	1	780320	048644	001.82	011.99	0706.3	03.19	02.70	12.1	001.18	002.91	0463.7	04.35	18.79	001.62	006.20	0654.2	03.06	02.59	13.2
33004	2	780602	049530	001.79	008.26	0713.6	02.88	02.90	12.1	001.00	002.75	0472.3	04.41	18.49	001.40	005.41	0669.0	02.93	02.85	13.0
33004	3	781023	052933	002.45	020.51	0683.2	04.01	03.55	12.3	001.40	003.89	0468.7	04.75	18.50	002.27	017.16	0651.4	03.27	02.85	12.9
33004	4	790201	054703	002.36	015.08	0691.1	05.31	04.20	12.3	001.32	003.03	0449.9	05.76	19.33	002.11	007.47	0671.6	04.45	03.55	12.8
33005	0	771012	025475	001.89	029.89	0509.8	02.61	02.55	15.8	001.50	022.22	0380.3	02.84	21.12	001.93	025.12	0492.4	02.12	02.11	16.4
33005	1	780320	026719	002.21	022.49	0526.6	02.91	02.55	15.5	001.72	021.05	0384.1	03.59	20.98	002.42	020.30	0488.6	02.55	02.21	15.7
33005	2	780606	027505	002.02	019.70	0491.5	02.72	02.61	16.8	001.71	020.41	0350.2	03.14	22.88	002.24	018.26	0460.2	02.41	02.26	17.8
33005	3	780828	028346	002.22	021.29	0528.3	02.91	02.93	15.6	001.77	024.05	0379.3	03.64	20.98	002.42	022.77	0495.1	02.55	02.57	16.4
33005	4	781127	029061	001.95	017.29	0544.9	03.57	02.97	15.3	001.56	018.65	0398.6	04.39	20.49	002.04	015.29	0527.4	03.15	02.81	15.9
33006	0	771015	038737	002.14	048.66	0679.6	01.77	01.75	11.6	000.61	007.66	0500.4	02.14	17.24	001.88	040.56	0628.7	01.70	01.70	12.7
33006	1	780327	041772	001.84	046.32	0696.8	02.03	01.32	11.4	000.51	007.23	0524.0	02.78	16.52	001.45	039.19	0635.4	01.39	01.73	12.6
33006	2	780607	043252	001.71	043.11	0677.4	01.95	01.98	11.8	000.60	007.19	0493.6	02.45	17.50	001.40	038.48	0641.7	01.95	02.01	12.5
33006	3	780825	044220	001.46	042.12	0698.6	01.99	01.95	11.5	000.40	006.92	0496.4	02.46	17.44	001.15	036.39	0636.8	01.90	01.85	12.7
33006	4	781121	045367	001.91	045.33	0710.5	02.31	01.97	11.3	000.40	007.65	0515.3	03.15	16.78	001.65	037.11	0662.0	02.40	01.94	12.2
33007	0	771102	021064	001.74	040.40	0715.1	03.02	02.63	11.3	000.60	006.65	0510.9	04.28	16.95	001.68	034.93	0673.8	02.93	02.55	12.0
33007	1	780324	021688	001.96	038.76	0719.4	02.91	02.59	11.3	000.69	005.99	0517.5	03.94	16.76	001.77	035.86	0663.1	02.53	02.16	12.2
33007	2	780609	022324	002.01	043.84	0678.3	02.46	02.31	11.8	000.72	007.69	0499.0	03.58	17.27	001.77	042.61	0637.4	02.30	02.16	12.4
33007	3	780824	023005	002.19	042.16	0712.4	02.92	02.93	11.3	000.73	007.88	0517.0	04.48	16.68	001.65	038.04	0675.3	02.77	02.67	11.9
33007	4	781117	023391	001.57	035.46	0689.2	02.56	02.30	11.8	000.61	005.01	0482.7	03.68	18.01	001.35	030.30	0642.6	02.68	02.39	12.7
33008	0	771102	042403	001.86	007.32	0660.1	04.60	03.90	13.1	001.52	004.12	0468.2	06.76	18.49	002.06	012.13	0611.8	04.43	03.82	13.9
33008	1	780404	046053	001.92	011.61	0645.5	04.56	03.98	13.2	001.54	007.89	0466.9	06.88	18.32	002.06	015.02	0608.2	04.09	03.47	13.9
33008	2	780630	047722	002.28	016.82	0668.1	04.09	04.07	12.6	001.82	010.61	0474.6	06.00	17.84	003.00	040.14	0644.7	04.26	04.20	12.3
33008	3	780922	049202	002.61	020.74	0752.0	06.78	05.21	11.2	001.57	007.47	0520.7	07.96	16.50	002.69	032.52	0713.6	05.98	05.50	11.4
33008	4	781215	051303	002.17	015.56	0710.7	05.81	04.84	12.0	001.26	004.97	0483.1	07.34	17.92	002.58	023.06	0672.7	05.38	04.51	12.3
33009	0	771109	066385	002.33	018.43	0554.6	03.29	02.83	15.0	000.50	007.38	0469.1	03.39	18.39	004.06	011.54	0528.1	02.94	02.51	15.8
33009	1	780330	069173	027.24	039.34	0565.1	04.43	03.95	12.4	019.53	019.29	0447.5	05.94	16.43	021.89	021.59	0516.2	04.34	04.27	14.3
33009	2	780710	071230	023.55	029.01	0533.8	03.27	02.98	13.6	020.66	018.23	0433.9	03.38	16.79	021.00	018.75	0507.6	03.55	03.23	14.6
33009	3	781004	073692	002.07	047.30	0627.0	02.87	02.54	12.5	000.61	014.84	0495.1	05.42	17.04	003.24	045.70	0598.4	02.39	02.73	13.0
33009	4	790123	075904	002.13	050.47	0554.4	02.41	02.03	13.8	000.64	017.67	0420.3	03.58	19.70	002.24	042.56	0525.3	02.29	01.96	14.8
33010	0	771122	056347	002.56	027.06	0629.5	01.97	01.67	13.0	000.70	006.28	0477.9	02.71	18.10	001.74	030.84	0589.9	01.87	01.59	13.7
33010	1	780328	059143	002.21	024.65	0614.7	01.58	01.44	13.4	000.74	005.24	0479.9	02.19	18.08	001.91	020.84	0578.9	01.48	01.33	14.3
33010	2	780608	062659	002.00	025.92	0599.2	01.42	01.38	13.7	000.64	004.28	0444.8	01.94	19.55	001.64	031.97	0578.9	01.49	01.39	13.9
33010	3	780901	066671	003.00	041.35	0567.5	01.30	01.25	13.8	001.03	007.86	0450.5	01.59	19.02	002.24	040.89	0541.4	01.30	01.27	14.4
33010	4	781206	070120	002.45	042.31	0537.3	01.72	01.42	14.5	000.80	007.27	0440.9	02.33	19.50	002.06	039.55	0519.1	01.71	01.42	15.0

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
33011	0	771219	041878	001.16	009.93	0481.5	03.35	02.77	17.7	000.20	002.78	0347.8	03.39	25.13	001.14	013.99	0448.9	02.58	02.20	18.6
33011	1	780405	042521	001.69	013.08	0510.1	03.49	03.12	15.5	000.20	002.85	0366.1	03.65	23.89	000.92	010.20	0486.4	03.02	02.71	17.5
33011	2	780622	043596	001.50	035.07	0444.8	02.72	02.56	17.6	000.28	005.21	0340.2	03.31	25.39	001.37	029.98	0411.5	02.38	02.23	19.1
33011	3	780908	044953	001.46	032.01	0420.6	02.53	02.33	18.6	000.31	006.47	0330.5	02.92	25.95	001.56	037.16	0386.1	02.02	01.88	19.7
33011	4	781208	046144	001.27	021.57	0454.5	02.66	02.17	18.0	000.27	005.56	0335.4	03.08	25.70	001.20	018.89	0426.0	02.13	01.75	19.3
33012	0	771220	078666	003.25	035.24	0722.5	06.07	04.92	11.3	001.84	012.76	0511.0	06.14	16.52	002.99	026.01	0703.4	06.13	04.96	11.7
33012	1	780420	083197	003.04	031.67	0725.8	06.80	06.34	11.3	001.80	012.76	0524.2	06.39	16.13	002.95	023.40	0703.3	06.58	05.84	11.8
33012	2	780714	085946	003.25	028.12	0670.3	04.96	04.97	12.2	002.30	014.02	0491.9	04.99	17.01	003.32	025.09	0634.7	04.92	04.93	12.9
33012	3	781011	089045	002.74	027.28	0676.8	04.36	03.88	12.2	001.55	010.52	0487.0	05.09	17.44	002.93	025.06	0643.3	05.32	04.77	12.8
33013	0	771229	123981	003.42	039.51	0491.0	01.56	01.31	15.7	000.78	025.05	0306.2	01.35	25.48	002.73	035.34	0466.8	01.29	01.08	16.7
33013	1	780523	124075	002.66	037.78	0465.5	01.93	01.55	16.6	001.34	026.74	0296.5	02.27	25.87	002.77	036.76	0456.8	01.84	01.57	16.9
33014	0	780104	060179	004.88	044.28	0619.5	03.12	02.67	12.6	003.16	009.36	0491.0	04.32	17.19	005.15	034.59	0576.6	02.95	02.53	13.7
33014	1	780509	064309	002.21	025.03	0653.6	02.43	02.28	12.7	000.68	006.53	0480.0	03.30	18.01	001.63	021.83	0593.2	02.18	02.33	14.0
33014	2	780731	066850	002.72	032.43	0619.4	02.35	02.21	13.1	000.77	008.73	0471.5	03.11	18.18	001.82	025.24	0568.0	02.26	02.11	14.6
33014	3	781024	071409	002.60	036.34	0651.9	03.95	03.44	12.4	000.72	012.07	0510.4	04.68	16.68	001.95	039.23	0599.7	03.53	03.07	13.2
33014	4	790206	075863	002.42	026.23	0648.2	02.86	02.61	12.7	000.85	008.71	0483.3	04.13	17.75	001.98	020.30	0600.8	02.91	02.66	13.8
33015	0	780104	054028	004.72	096.97	0270.7	00.78	00.65	20.2	001.97	063.75	0202.2	01.36	28.74	004.17	090.10	0260.6	00.75	00.63	21.3
33015	1	780504	056517	004.91	098.48	0271.6	00.86	00.72	20.1	002.29	064.19	0208.4	01.58	28.02	004.52	090.01	0260.0	00.77	00.65	21.3
33015	2	780802	060016	005.00	091.21	0267.5	00.87	00.82	20.8	002.35	041.34	0212.9	02.29	31.08	004.48	068.59	0264.0	00.93	00.87	22.9
33015	3	781024	062094	005.44	092.66	0269.6	00.83	00.72	20.5	002.86	058.28	0210.7	01.78	28.49	004.70	072.27	0269.8	01.02	00.87	22.2
33015	4	790201	063960	006.89	123.38	0258.4	00.65	00.51	18.7	002.94	056.68	0205.7	01.84	29.16	004.94	088.07	0259.9	00.72	00.57	21.4
33016	0	780111	044648	002.35	028.27	0439.7	05.08	04.39	18.0	001.53	026.38	0327.0	06.42	23.75	002.00	020.56	0410.2	04.90	04.25	19.7
33016	1	780424	046115	002.46	041.90	0400.4	04.00	03.49	18.7	001.69	035.87	0304.2	05.14	24.23	001.73	022.93	0392.8	04.28	03.75	20.6
33016	2	780718	047521	002.05	036.91	0402.1	03.01	03.01	19.0	001.39	029.83	0290.6	05.34	25.94	001.72	029.62	0378.4	03.54	03.54	20.6
33016	3	781016	049905	001.45	018.37	0449.1	05.29	04.99	19.4	001.16	017.00	0350.8	08.00	23.27	001.23	015.19	0421.9	04.97	04.67	19.7
33016	4	790123	051233	002.61	049.03	0410.9	04.51	03.79	17.9	001.35	014.14	0338.6	07.19	24.29	001.90	030.34	0398.7	04.56	03.83	19.6
33017	0	780117	038613	002.67	048.20	0362.5	02.57	02.33	19.9	001.89	039.34	0271.7	03.43	26.12	002.63	041.25	0343.0	02.29	02.08	21.3
33017	1	780424	041046	002.54	048.44	0353.9	02.58	02.22	20.2	001.85	039.87	0253.3	02.94	27.56	002.36	045.31	0334.6	02.26	01.93	21.4
33017	2	780811	043983	004.03	045.55	0335.8	01.92	01.90	21.1	001.82	040.17	0261.3	02.93	26.86	004.69	041.89	0319.1	01.83	01.79	22.1
33017	3	781031	046743	004.60	048.08	0354.3	03.15	02.55	20.0	002.09	027.90	0288.9	05.22	26.13	004.51	029.42	0332.0	03.40	02.85	22.5
33017	4	790130	049759	004.36	047.50	0365.7	04.11	03.28	19.5	002.32	027.90	0314.9	06.88	24.29	005.67	033.68	0352.2	04.41	03.54	20.9
33018	0	780117	031672	001.68	045.90	0508.8	01.64	01.48	15.1	001.62	054.85	0347.6	02.20	20.20	001.46	039.23	0483.9	01.52	01.32	16.1
33018	1	780425	033415	002.39	057.75	0542.1	02.13	02.10	13.8	001.78	056.54	0365.2	02.59	19.29	002.03	053.87	0504.9	01.90	01.86	14.8
33018	2	780719	034731	002.21	054.18	0546.9	02.72	02.65	13.9	001.75	049.37	0361.9	03.08	19.93	001.90	050.85	0518.0	02.49	02.43	14.6
33018	3	781011	036236	002.08	048.89	0580.7	02.59	02.30	13.4	001.58	047.03	0361.9	03.03	20.12	001.59	047.20	0538.9	02.21	01.99	14.3
33018	4	790125	037426	002.73	071.30	0473.6	02.50	02.05	14.9	001.76	053.89	0332.3	03.07	20.99	002.29	057.37	0456.6	02.16	01.77	16.0
33019	0	780120	041104	002.35	036.36	0699.7	02.43	02.21	11.6	001.47	007.44	0485.9	04.87	17.66	001.87	027.22	0688.9	02.48	02.25	12.0
33019	1	780427	044008	004.23	070.56	0603.5	02.91	02.55	12.2	001.63	013.81	0468.0	04.67	17.92	003.33	059.71	0577.3	02.39	02.69	13.0
33019	2	780719	047533	004.65	068.71	0588.4	03.03	02.98	12.5	001.86	015.56	0475.2	04.89	17.54	003.81	060.69	0575.3	03.05	03.01	12.9
33019	3	781013	050476	004.53	071.09	0567.9	03.29	02.76	12.8	001.76	015.97	0436.5	04.56	18.98	003.79	066.61	0527.2	03.11	02.62	13.7
33019	4	790125	053255	004.84	078.83	0578.8	02.80	02.30	12.4	001.76	016.17	0430.4	04.26	19.22	003.82	067.37	0550.9	02.75	02.25	13.2
33020	0	780126	032075	001.23	040.78	0723.9	02.86	02.45	11.2	000.46	011.16	0503.5	05.04	16.97	000.86	038.83	0687.9	02.88	02.46	11.8
33020	1	780501	033353	001.14	036.57	0716.2	02.94	02.52	11.4	000.73	007.45	0480.7	06.37	17.93	000.76	031.20	0684.7	03.12	02.79	12.3
33020	2	780724	034230	001.33	042.67	0767.1	02.80	03.20	10.6	000.53	011.46	0482.3	04.61	17.66	000.93	043.17	0707.4	02.24	02.55	11.4
33020	3	781017	035099	001.45	037.26	0815.3	02.82	02.53	10.1	000.30	013.02	0545.5	04.27	15.64	000.63	039.50	0794.0	02.22	02.09	10.3
33020	4	790124	035798	030.57	040.97	0734.7	04.04	03.36	09.9	011.50	009.08	0477.7	06.37	16.78	021.95	040.44	0701.3	03.80	03.20	10.6
33021	0	780127	055693	002.53	034.54	0352.7	02.49	02.07	21.4	000.50	005.62	0282.0	03.44	30.33	002.31	029.04	0335.9	02.25	01.93	22.8
33022	0	780203	048498	002.41	024.15	0342.2	05.06	04.72	22.9	001.41	006.73	0278.7	06.65	30.19	002.14	014.95	0325.8	05.06	04.71	24.9
33022	1	780503	050852	002.32	023.35	0362.1	05.82	04.35	21.8	001.33	005.92	0304.6	08.41	27.88	002.21	017.49	0335.6	05.55	04.63	23.9
33022	2	780728	053726	002.15	042.25	0337.3	04.32	04.25	21.6	000.95	007.01	0271.2	05.75	31.09	001.76	031.51	0308.8	03.96	04.09	24.3
33022	3	781019	057343	002.71	040.47	0357.6	04.58	04.11	20.6	001.15	007.53	0299.5	05.95	28.16	002.17	028.51	0333.6	04.19	03.83	23.0
33022	4	790124	059822	002.79	043.88	0362.6	04.50	03.80	20.1	001.37	010.36	0284.6	05.77	29.05	002.34	035.31	0340.0	04.08	03.44	22.0
33023	0	780204	066550	001.42	023.55	0760.2	05.29	04.67	11.1	000.31	007.08	0555.6	06.24	15.62	000.93	017.79	0695.1	05.19	04.64	12.2
33023	1	780509	069788	001.36	027.05	0841.0	05.85	05.33	10.0	000.34	007.56	0594.7	07.48	14.59	001.16	019.32	0822.9	05.77	06.33	10.3
33023	2	780801	072321	001.46	024.99	0767.7	03.77	04.01	10.9	000.33	005.33	0542.9	04.85	16.05	001.13	020.00	0764.6	04.02	04.20	11.0
33023	3	781026	075758	001.23	024.31	0723.3	05.45	04.33	11.6	000.35	007.58	0548.8	07.32	15.78	001.17	021.17	0663.2	05.37	04.57	12.6
33023	4	790202	078719	001.27	021.45	0709.9	05.66	04.49	11.9	000.44	005.98	0518.4	07.33	16.76	001.61	015.49	0667.5	06.10	04.83	12.7
33024	0	780209	090411	002.07	024.48	0450.0	06.10	05.18	17.9	001.54	017.17	0360.2	08.64	22.62	002.15	021.69	0422.6	05.66	04.77	19.1
33024	1	780509	094362	002.99	048.16	0436.8	05.54	05.34	17.0	001.32	022.34	0367.2	08.47	21.72	002.80	038.31	0420.4	05.37	05.33	18.1
33024	2	780727	098204	002.80	040.05	0415.8	04.39	04.22	18.2	001.84	018.87	0329.0	06.74	24.33	002.54	037.49	0392.0	04.17	04.02	19.3
33024	3	781020	101964	002.78	045.57	0439.6	05.24	04.54	17.1	001.74	018.33	0374.6	08.16	21.64	002.37	037.62	0411.5	04.97	04.26	18.5
33024	4	790125	107164	002.25	024.86	0455.2	05.42	04.51	17.7	001.60	014.61	0348.1	07.70	23.58	002.03	022.31	0417.2	04.87	04.09	19.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
33025	0	780210	054917	002.11	028.13	0659.1	03.62	03.05	12.5	000.96	006.90	0476.4	04.63	18.09	001.93	017.47	0606.7	03.44	02.92	13.8
33025	1	780518	057291	002.24	030.37	0674.2	03.30	03.13	12.2	001.10	007.90	0484.4	04.66	17.72	001.87	019.39	0634.7	03.53	03.43	13.2
33025	2	780809	058751	002.17	031.95	0657.6	02.72	02.88	12.4	000.90	007.08	0468.1	03.69	18.40	001.69	021.42	0621.3	02.75	02.37	13.4
33025	3	781031	062005	002.08	027.71	0681.8	02.51	02.12	12.1	000.65	005.91	0489.3	03.60	17.71	001.47	018.26	0643.5	02.67	02.24	13.1
33025	4	790202	063987	001.89	026.09	0629.1	02.44	01.96	13.1	000.77	005.17	0434.2	03.22	19.94	001.58	016.73	0586.6	02.53	02.03	14.3
33026	0	780217	063693	004.16	045.80	0332.2	02.24	01.96	21.3	001.13	016.33	0269.8	03.37	29.65	003.70	043.50	0325.5	02.13	01.87	21.8
33026	1	780512	066873	003.57	042.39	0328.9	02.61	02.23	21.8	001.00	012.49	0252.6	03.59	32.20	003.50	038.36	0315.2	02.36	02.37	22.9
33026	2	780810	068914	004.18	041.01	0315.2	02.15	02.05	22.6	001.37	014.24	0240.8	03.01	33.27	003.68	038.13	0305.5	01.99	01.88	23.5
33026	3	781103	070757	005.79	038.76	0303.0	02.52	02.32	23.2	001.41	013.91	0240.0	03.50	33.29	005.28	034.43	0284.8	02.22	02.06	24.9
33026	4	790209	073308	003.82	038.71	0293.6	02.23	02.06	24.2	001.13	012.97	0213.2	03.04	37.39	003.69	031.97	0284.8	02.13	01.97	25.5
33027	0	780307	051998	002.39	033.10	0468.5	03.10	02.69	16.8	001.25	005.21	0343.9	05.75	24.90	001.70	019.93	0444.3	02.54	02.23	18.4
33027	1	780525	052912	002.04	031.99	0463.3	02.89	02.55	17.1	001.11	005.28	0338.9	05.15	25.29	001.89	025.32	0430.7	02.59	02.23	18.6
33027	2	780906	055797	001.66	024.69	0446.5	02.95	02.71	18.1	001.00	003.86	0330.1	05.43	26.13	001.28	011.75	0426.3	02.63	02.38	19.7
33027	3	781204	056927	001.36	023.34	0443.5	01.71	01.48	13.3	000.22	003.13	0364.9	01.80	23.93	001.21	013.08	0417.9	01.54	01.36	20.0
33027	4	790222	059192	001.82	029.67	0437.3	02.76	02.44	18.1	000.94	003.90	0329.7	05.33	26.17	001.46	016.08	0411.6	02.46	02.17	20.0
33028	0	780227	073062	003.46	052.15	0591.2	04.02	03.77	13.0	001.75	011.61	0422.2	06.87	19.88	002.36	036.16	0573.8	04.18	03.92	13.9
33028	1	780523	074766	002.66	050.87	0589.6	03.64	03.26	13.1	001.47	014.71	0430.6	06.53	19.35	001.98	034.57	0570.2	03.91	03.52	14.0
33028	2	780815	075604	002.70	047.34	0582.8	03.12	03.22	13.3	001.34	013.99	0420.3	05.47	19.86	002.14	041.14	0553.3	03.17	03.26	14.2
33028	3	781107	077219	002.42	045.66	0581.8	03.45	03.14	13.4	001.39	013.92	0417.8	06.23	19.97	001.97	038.49	0561.2	03.48	03.17	14.1
33028	4	790206	080483	002.36	031.62	0569.3	03.21	02.94	14.2	001.63	013.00	0405.3	05.62	20.58	001.73	019.82	0540.3	03.18	02.95	15.3
33029	0	780301	067760	002.64	067.80	0641.7	05.09	04.76	11.7	000.95	014.70	0453.2	05.68	18.50	002.24	060.56	0598.2	04.76	04.44	12.6
33029	1	780509	069557	002.82	075.22	0666.6	04.62	04.43	11.2	000.97	021.87	0494.2	05.08	16.68	002.44	076.02	0630.6	04.26	04.33	11.7
33029	2	780808	071873	002.73	085.62	0619.9	03.38	03.77	11.6	000.87	020.04	0484.7	04.64	17.09	002.39	077.02	0597.0	03.41	03.81	12.2
33029	3	781103	074690	003.04	079.61	0663.7	05.02	04.58	11.1	001.25	023.77	0499.3	06.46	16.40	002.90	080.62	0645.2	04.87	04.51	11.3
33029	4	790212	077344	002.73	052.57	0607.1	04.62	04.21	12.7	001.43	020.06	0475.0	05.48	17.35	002.76	049.59	0556.5	04.20	03.84	13.7
33030	0	780304	046314	002.20	024.00	0812.4	04.32	03.92	10.3	007.60	008.77	0552.2	06.81	15.03	002.76	020.62	0757.7	04.32	03.90	11.1
33030	1	780521	047480	003.59	026.78	0754.7	04.64	04.30	11.0	001.06	005.37	0503.4	08.74	17.21	002.52	018.70	0717.4	05.05	04.37	11.7
33030	2	780828	048930	002.60	030.35	0782.7	04.08	04.29	10.6	001.62	011.32	0516.0	07.51	16.45	007.35	032.02	0711.8	04.32	04.55	11.2
33030	3	781130	049751	008.38	045.05	0777.7	04.97	04.53	10.1	003.65	007.89	0506.2	08.38	16.73	010.50	019.57	0712.8	05.31	04.08	11.4
33030	4	790216	050904	004.83	059.79	0773.1	05.27	04.54	10.1	001.60	012.96	0518.9	09.25	16.29	002.83	045.73	0702.8	05.16	04.45	11.3
33031	0	780303	050644	003.83	056.11	0585.7	04.13	03.35	12.9	001.60	009.85	0427.3	05.85	19.80	002.54	023.62	0572.2	04.68	03.78	14.3
33031	1	780523	052354	003.30	046.21	0628.6	05.13	04.41	12.5	001.71	009.41	0476.2	07.22	17.86	002.77	020.26	0608.2	05.58	04.81	13.6
33031	2	780822	055354	003.19	032.55	0624.8	07.10	06.73	12.9	001.64	008.91	0450.7	05.32	18.87	002.65	015.26	0597.4	04.60	04.35	14.0
33031	3	781115	057592	003.60	050.87	0596.1	04.61	03.92	12.9	001.76	015.44	0443.7	06.43	18.73	003.45	046.87	0546.4	03.94	03.42	14.0
33031	4	790223	060370	003.58	055.34	0595.9	04.43	03.94	12.8	001.79	013.30	0445.2	06.52	18.79	003.08	028.56	0562.3	04.66	04.15	14.3
33032	0	780310	050495	002.94	035.36	0604.7	03.81	03.20	13.2	001.54	008.75	0405.2	07.85	20.92	002.75	032.06	0555.5	04.35	03.68	14.4
33032	1	780531	053494	003.04	027.52	0688.7	05.07	04.41	12.0	001.92	011.38	0528.5	12.20	16.05	003.34	030.41	0700.5	05.38	06.43	11.6
33032	2	780816	055840	003.70	030.74	0690.9	04.44	04.18	11.8	002.10	010.17	0482.7	10.44	17.55	003.51	019.07	0655.8	05.66	05.34	12.7
33032	3	781107	059001	003.96	053.43	0651.7	04.62	04.02	11.9	001.97	012.37	0482.7	10.75	17.44	003.83	047.12	0600.5	05.49	04.83	12.9
33032	4	790202	060233	004.05	049.14	0622.1	05.15	04.16	12.5	002.34	021.90	0457.3	09.41	17.77	006.06	099.41	0507.4	03.77	03.05	12.9
33033	0	780310	056587	001.65	023.00	0658.3	05.21	04.41	12.7	000.74	012.07	0510.1	05.65	16.69	001.59	015.93	0613.1	05.02	04.26	13.7
33033	1	780531	057873	002.26	021.32	0646.4	04.39	04.15	12.9	000.57	008.50	0501.1	05.33	17.18	004.84	014.08	0597.1	04.30	04.06	13.9
33033	2	780816	060250	001.83	022.82	0655.8	04.63	04.55	12.7	000.56	008.87	0499.8	05.50	17.20	001.58	015.07	0618.4	04.58	04.52	13.7
33033	3	781106	061201	001.93	025.68	0664.1	04.45	03.78	12.5	000.59	009.61	0496.2	05.26	17.28	001.26	016.47	0620.8	04.35	03.75	13.6
33033	4	790206	062159	001.51	023.98	0638.9	04.04	03.69	13.0	000.64	012.85	0509.5	05.86	16.68	001.52	021.63	0631.6	04.80	04.38	13.2
33034	0	780329	071766	002.90	022.87	0681.5	03.71	03.29	12.2	001.54	004.35	0486.2	06.09	17.81	002.03	009.41	0643.7	03.57	03.12	13.3
33034	1	780616	074327	002.19	019.63	0687.5	04.27	03.87	12.2	001.32	004.01	0481.8	06.51	18.01	001.85	011.17	0649.1	03.99	03.63	13.1
33034	2	780911	077821	002.89	032.03	0717.9	03.95	03.78	11.4	001.45	011.91	0504.3	04.32	16.81	002.73	028.18	0666.3	03.02	02.90	12.3
33034	3	781204	080368	002.73	022.62	0642.4	04.29	03.53	12.9	001.21	005.89	0463.3	05.13	18.62	002.46	016.32	0602.5	03.54	03.01	13.9
33034	4	790221	082911	003.23	030.00	0645.8	04.14	03.63	12.6	002.12	010.26	0451.8	06.06	18.68	002.98	023.63	0600.7	03.52	03.11	13.7
33036	0	780417	070102	001.72	037.61	0708.3	04.42	03.91	11.5	000.42	005.75	0511.2	05.82	17.00	001.20	029.76	0659.6	04.25	03.75	12.4
33036	1	780718	074964	001.85	037.01	0653.7	03.44	03.27	12.4	000.54	009.84	0464.0	04.79	18.42	001.57	027.07	0616.6	03.60	03.25	13.3
33036	2	781009	078431	001.85	036.48	0653.6	03.00	02.95	12.4	000.59	008.49	0455.7	04.18	18.83	001.29	024.09	0617.6	02.87	02.80	13.4
33036	3	790112	082129	001.69	042.03	0685.1	03.05	02.58	11.7	000.49	012.11	0470.3	04.44	18.07	001.16	033.79	0667.1	03.45	02.93	12.2
33036	4	790328	085931	001.47	040.78	0707.8	03.24	02.78	11.4	000.53	009.97	0507.8	04.73	16.89	001.20	033.79	0666.6	03.34	02.83	12.2
33037	0	780417	030271	002.04	020.66	0880.5	03.34	03.08	09.6	000.90	007.05	0597.2	04.99	14.51	002.26	014.26	0820.2	03.73	03.45	10.4
33037	1	780718	032874	001.92	026.55	0814.7	02.30	02.39	10.3	000.35	011.24	0520.1	02.36	16.41	001.80	026.12	0754.8	02.47	02.55	11.0
33037	2	781010	035932	001.94	028.60	0772.3	03.06	02.87	10.8	000.91	007.42	0513.6	03.65	16.79	001.87	030.45	0717.5	02.93	02.81	11.5
33037	3	781228	038329	001.52	023.66	0796.8	03.23	02.64	10.6	000.79	007.17	0503.6	03.60	17.14	001.60	017.53	0741.4	03.40	02.77	11.4
33037	4	790313	039961	001.49	009.94	0825.4	03.18	02.57	10.5	000.76	003.98	0523.8	04.30	16.66	001.72	007.14	0764.9	03.35	02.87	11.3
33038	0	780417	053421	002.71	020.32	0770.3	03.83	03.50	10.9	001.00	005.12	0553.8	05.89	15.70	002.35	016.71	0722.7	03.70	03.45	11.7
33038	1	780725	055528	004.54	020.09	0687.5	02.83	03.35	12.1	002.54	005.23	0450.8	04.88	18.99	004.25	017.18	0655.0	02.96	02.95	12.7
33038	2	781012	057361	031.69	047.41	0652.3	03.84	03.44	10.7	020.92	010.56	0472.7	04.89	15.96	029.45	043.54	0599.2	03.63	03.26	11.6
33038	3	781227	059115	039.71	037.62	0650.6	04.00	03.31	10.2	022.57	013.09	0504.5	04.28	14.86	031.01	047.20	0609.2	03.75	03.08	11.3
33038	4	790320	060186	033.86	047.53	0691.3	03.58	03.04	10.2	023.79	017.66	0520.2	04.09	14.23	032.64	059.16	0614.4	03.05	02.58	10.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
33039	0	780418	021676	002.64	017.03	0644.5	02.47	02.35	13.0	001.37	016.65	0498.0	03.44	16.81	002.29	013.78	0640.3	02.53	02.42	13.2
33039	1	780718	022277	002.39	017.15	0623.7	02.16	02.20	13.5	001.38	014.16	0471.4	02.86	17.84	002.17	012.59	0614.2	02.13	02.16	13.8
33039	2	781011	022977	002.42	015.93	0634.7	02.43	02.17	13.3	001.32	013.48	0484.0	03.25	17.44	002.31	014.52	0611.1	02.34	02.11	13.8
33039	3	781227	023571	002.10	015.17	0604.5	02.24	01.86	14.0	000.86	011.23	0453.0	03.22	18.73	001.98	012.34	0580.1	02.22	01.86	14.6
33039	4	790312	024402	002.20	014.19	0597.7	02.11	01.87	14.1	000.97	010.55	0442.2	02.97	19.20	001.92	011.25	0574.3	02.14	01.88	14.8
33040	0	780418	092715	001.68	016.46	0884.7	04.52	04.21	09.7	000.98	011.10	0570.0	06.09	15.02	001.65	016.80	0816.3	04.32	04.02	10.4
33040	1	780710	094221	001.35	012.09	0842.5	03.35	03.11	10.2	000.95	007.64	0553.6	05.20	15.60	001.30	009.09	0774.4	03.08	02.86	11.1
33040	2	780928	096504	001.73	014.04	0864.3	03.86	03.62	09.9	000.60	005.15	0582.4	05.21	14.97	001.28	013.15	0815.2	04.04	03.81	10.5
33040	3	781219	097873	002.86	014.10	0804.8	04.25	03.53	10.6	006.14	010.60	0518.9	05.35	15.98	002.05	012.55	0768.6	04.35	03.62	11.1
33040	4	790307	098971	002.48	010.24	0815.4	03.99	03.42	10.6	000.71	004.27	0531.3	05.66	16.42	003.41	008.84	0751.8	03.92	03.33	11.4
33041	0	780412	039225	001.52	010.97	0493.3	05.92	05.15	17.2	000.94	004.00	0347.8	08.21	24.84	001.59	006.99	0473.4	05.31	04.73	18.1
33041	1	780623	040939	011.65	014.12	0454.2	05.03	04.76	17.3	005.40	003.46	0336.6	07.42	24.69	012.15	006.47	0422.6	04.55	04.34	18.8
33041	2	780919	042827	001.72	011.30	0504.2	05.87	05.36	16.8	000.93	003.41	0362.0	07.99	23.95	001.32	005.31	0478.8	05.06	04.62	18.0
33041	3	781214	044475	001.39	007.64	0469.9	05.15	04.25	19.2	000.87	003.33	0329.4	07.55	26.28	001.27	006.48	0435.1	04.54	03.73	19.7
33041	4	790305	046098	001.76	024.67	0457.8	04.73	04.53	17.7	000.98	004.39	0348.5	07.62	24.73	001.27	007.27	0436.2	04.15	03.97	19.6
33042	0	780623	057229	002.13	060.64	0653.4	03.90	03.70	11.7	000.81	012.45	0462.3	05.67	18.31	001.80	047.95	0621.9	04.32	04.08	12.6
33042	1	780914	059787	002.17	061.86	0687.9	04.45	04.35	11.2	000.83	013.13	0478.6	05.77	17.67	001.77	049.89	0650.7	04.59	04.61	12.3
33042	2	781205	062145	001.78	012.77	0637.3	05.76	04.88	13.4	000.82	005.26	0427.5	06.09	20.23	001.53	006.32	0610.0	05.96	05.07	14.1
33042	3	790222	063503	002.65	038.70	0619.5	05.02	04.34	12.9	000.92	013.35	0450.8	05.98	18.68	001.78	019.90	0601.8	05.16	04.51	13.8
33043	0	780804	054914	002.72	010.75	0817.2	03.45	03.55	10.5	001.15	004.39	0520.9	03.77	16.69	002.51	007.71	0772.6	03.94	04.14	11.1
43002	0	771013	015640	002.25	041.42	0722.7	01.11	01.03	11.2	000.58	010.08	0532.4	01.28	16.12	002.23	042.27	0666.5	00.90	00.84	11.9
43002	1	780316	017618	002.35	035.60	0671.6	01.69	01.42	12.1	000.72	012.23	0512.4	02.09	16.61	002.17	018.75	0623.8	02.78	02.33	13.4
43002	2	780616	019215	002.27	036.75	0621.1	01.80	01.66	12.9	000.83	010.43	0484.7	02.36	17.60	001.88	040.50	0589.8	01.58	01.46	13.4
43002	3	780913	020578	002.40	044.23	0635.2	01.52	01.46	12.5	000.70	008.42	0479.6	02.25	17.91	001.84	037.49	0604.9	01.40	01.34	13.2
43002	4	781208	022525	002.08	042.33	0607.5	01.57	01.28	13.0	000.77	009.04	0460.8	02.19	18.57	001.88	042.48	0567.1	01.31	01.07	13.8
43003	0	771021	050137	002.66	026.06	0474.5	06.56	06.11	16.9	001.46	003.97	0404.0	08.60	21.38	002.13	049.37	0448.9	06.49	06.05	16.6
43003	1	780321	054512	003.03	021.31	0475.6	09.31	08.39	17.1	001.60	005.54	0401.9	11.27	21.33	002.79	010.60	0443.4	08.85	07.66	18.9
43003	2	780601	058127	002.68	033.89	0438.7	08.36	07.20	17.7	001.36	007.73	0383.5	10.97	22.17	002.38	033.29	0410.7	07.70	06.67	18.8
43003	3	780829	063052	003.28	055.56	0440.2	05.59	06.30	16.5	001.83	021.41	0387.3	08.25	20.78	002.84	051.04	0395.4	04.58	05.34	18.3
43003	4	781129	068586	002.86	055.41	0461.8	06.02	05.41	15.9	001.20	016.20	0379.7	08.31	21.68	002.57	049.42	0430.8	05.50	04.97	17.1
43004	0	771019	022195	001.91	016.54	0673.2	03.23	02.86	12.6	001.38	006.79	0441.8	05.43	19.41	001.72	012.91	0639.1	03.27	02.86	13.3
43004	1	780317	024540	001.65	015.11	0677.6	03.41	03.05	12.6	001.44	007.08	0456.7	05.87	18.77	001.61	044.63	0634.8	03.27	02.83	12.6
43004	2	780525	025471	001.85	017.84	0694.9	03.44	03.01	12.2	001.54	008.78	0457.8	06.00	18.61	001.58	015.15	0633.2	03.12	02.72	13.4
43004	3	780817	026165	001.79	015.98	0674.8	03.12	02.86	12.6	001.46	008.08	0446.0	05.64	19.14	001.71	012.42	0633.4	03.35	02.78	13.4
43004	4	781113	027032	002.01	014.50	0687.1	03.86	03.09	12.4	001.26	004.54	0454.3	06.86	19.05	002.04	010.73	0647.7	03.79	03.01	13.2
43005	0	771108	098003	010.20	011.29	0880.4	03.45	02.95	09.5	001.51	003.34	0624.7	03.69	13.97	012.97	007.87	0823.3	03.40	02.94	10.1
43005	1	780331	104905	003.16	042.43	0772.2	05.93	05.19	10.4	001.51	011.32	0531.6	07.75	16.00	002.75	025.33	0733.5	06.22	05.24	11.3
43005	2	780706	109081	001.65	031.56	0846.2	04.34	04.25	09.8	000.44	004.84	0592.9	05.05	14.73	001.39	016.71	0806.3	04.57	04.46	10.5
43005	3	781004	114545	002.06	048.43	0841.5	04.87	04.51	09.6	000.43	013.58	0590.2	05.09	14.47	001.42	009.09	0827.6	05.13	04.75	10.4
43005	4	790129	118082	001.98	038.48	0912.2	04.19	03.38	09.1	000.38	008.41	0609.9	02.65	14.20	001.56	010.57	0844.5	04.46	03.61	10.2
43006	0	771117	033247	002.08	025.38	0760.9	02.16	01.82	11.0	000.71	004.67	0571.0	02.20	15.28	001.86	017.24	0734.6	02.09	01.75	11.5
43006	1	780327	035624	002.24	026.36	0770.9	02.18	01.75	10.8	000.72	005.21	0590.6	02.28	14.75	002.00	018.22	0726.2	01.95	01.75	11.6
43006	2	780614	037598	002.14	026.26	0729.6	02.05	01.93	11.4	000.67	005.02	0560.9	02.01	15.53	001.97	020.37	0711.3	02.03	01.91	11.8
43006	3	780906	040089	002.41	033.80	0720.2	01.97	01.85	11.4	000.73	005.47	0555.9	01.80	15.64	002.08	026.04	0699.6	01.88	01.75	11.8
43006	4	781211	042900	002.35	031.58	0686.7	01.92	01.63	11.9	001.00	005.58	0574.6	02.55	15.12	002.47	015.29	0698.2	02.14	01.82	12.1
43007	0	771202	040652	002.32	021.70	0425.0	04.85	04.60	18.8	001.46	012.46	0340.9	05.15	24.29	002.29	021.73	0404.5	04.66	04.51	19.8
43007	1	780420	043449	005.88	026.57	0462.2	04.97	04.31	17.3	001.59	013.25	0362.2	06.36	23.13	005.31	024.61	0429.2	04.44	04.27	18.2
43007	2	780717	045035	003.03	053.09	0408.1	04.98	04.85	17.7	001.34	009.19	0331.7	05.82	25.31	002.72	048.64	0385.0	04.93	04.72	18.8
43007	3	781002	049163	003.38	053.62	0440.4	05.80	05.33	16.6	001.76	011.03	0361.1	06.94	23.09	003.20	051.11	0410.3	05.35	04.93	17.7
43007	4	790103	050049	003.57	053.59	0437.8	07.85	06.16	16.6	001.55	009.58	0344.5	09.10	24.33	003.24	046.24	0412.6	07.50	05.87	17.8
43008	0	771130	042457	001.56	036.91	0426.0	03.24	02.82	18.1	000.40	008.90	0335.3	04.68	25.30	001.59	030.35	0404.3	03.25	02.81	19.4
43008	1	780327	047506	002.14	047.10	0411.8	02.77	02.48	18.0	000.48	011.48	0338.5	04.51	24.77	001.63	032.97	0376.8	02.72	02.42	20.4
43008	2	780615	050835	001.68	032.53	0428.7	03.56	03.16	18.3	000.57	011.67	0339.7	05.15	24.64	001.62	024.97	0401.1	03.48	03.12	19.9
43008	3	780905	054210	002.06	035.32	0422.2	03.35	03.17	19.3	000.59	011.53	0342.8	04.46	24.45	001.76	025.14	0396.0	03.29	03.09	20.1
43008	4	781211	058713	001.45	032.56	0389.4	02.65	02.31	19.9	000.39	010.83	0318.3	04.11	26.35	001.40	025.73	0360.9	02.54	02.31	21.8
43009	0	771201	051817	002.90	027.04	0353.5	02.81	02.65	19.9	001.55	014.11	0268.4	02.77	30.02	002.41	021.81	0376.7	02.71	02.54	21.1
43009	1	780328	060705	003.12	020.91	0369.3	03.13	02.33	21.5	001.71	015.40	0277.6	03.32	28.87	003.28	016.49	0330.4	02.77	02.71	24.1
43009	2	780725	065215	004.12	025.39	0366.3	02.50	02.89	21.2	001.82	021.19	0259.1	02.41	29.74	003.77	024.56	0344.4	02.26	02.59	22.4
43009	3	781018	069005	002.71	022.25	0377.7	02.77	02.59	21.1	001.50	016.00	0267.7	02.85	29.80	002.99	018.76	0361.6	02.64	02.46	22.1
43009	4	790119	074115	003.06	024.89	0381.3	02.79	02.37	23.6	001.83	020.79	0260.9	02.70	29.62	003.15	023.20	0369.0	02.35	02.75	21.3
43010	0	771208	039045	002.25	028.95	0645.6	04.86	04.37	12.7	001.30	008.38	0466.0	08.17	18.35	001.27	011.39	0648.2	05.52	04.53	13.2
43010	1	780324	041859	004.27	033.07	0679.9	04.93	04.43	11.9	001.37	009.32	0484.8	08.08	17.62	001.80	021.71	0634.6	04.37	04.27	13.1
43010	2	780609	044034	003.33	054.81	0562.1	05.11	04.80	13.5	001.84	012.11	0427.0	07.73	19.63	002.92	044.78	0535.0	05.07	04.78	14.4
43010	3	780830	047045	004.32	056.70	0594.0	04.92	04.93	12.7	002.13	011.25	0491.4	10.37	17.19	003.44	046.24	0609.2	06.30	06.31	12.8
43010	4	781204	049487	003.58	057.09	0560.3	04.94	04.35	13.4	002.34	013.59	0437.8	08.39	19.05	003.06	047.65	0536.8	04.89	04.24	14.2

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA ID	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
43011	0	771206	037432	002.27	045.68	0741.0	01.27	01.09	10.8	001.27	014.83	0567.9	01.74	14.90	001.99	043.31	0747.7	01.22	01.05	10.7
43011	1	780421	041920	002.22	053.76	0810.6	01.66	01.61	09.8	001.15	018.13	0603.3	01.94	13.96	002.12	055.86	0765.5	01.16	01.12	10.3
43011	2	780712	044527	002.01	042.76	0782.2	01.59	01.50	10.4	001.11	013.49	0555.9	01.89	15.27	001.65	043.36	0714.0	01.26	01.22	11.2
43011	3	781002	047148	002.29	052.02	0796.9	02.72	02.46	10.0	001.14	016.19	0604.8	02.05	13.99	001.99	051.64	0767.8	01.31	01.21	10.3
43011	4	781220	049748	001.93	049.02	0715.8	04.27	03.52	11.1	000.89	009.91	0543.7	03.39	15.78	003.19	048.71	0705.0	02.21	01.81	11.2
43012	0	771212	055913	003.03	030.55	0303.0	02.67	02.39	24.6	001.33	011.88	0223.2	03.10	36.04	003.09	029.64	0287.5	02.36	02.11	25.7
43012	1	780320	057838	005.33	043.24	0285.0	02.99	02.52	24.0	001.70	012.97	0233.0	04.01	34.27	004.83	039.46	0278.6	02.35	02.42	24.7
43012	2	780606	059614	004.83	035.97	0298.0	02.63	02.56	24.0	001.40	008.32	0230.5	03.06	35.75	004.30	032.06	0282.1	02.51	02.51	25.6
43012	3	780824	062408	004.95	035.75	0318.2	03.19	03.33	22.7	001.32	007.64	0253.2	04.21	32.92	004.26	032.37	0303.1	02.97	03.04	24.1
43012	4	781116	065363	004.55	039.78	0290.2	03.02	02.72	24.2	001.46	011.01	0232.1	05.17	34.91	003.90	033.64	0270.7	02.75	02.49	26.3
43013	0	771216	036940	002.62	024.84	0287.3	03.88	03.35	26.5	001.12	003.09	0241.0	05.46	35.56	002.20	013.49	0273.9	03.71	03.22	29.3
43013	1	780922	043650	002.22	020.73	0313.9	03.42	03.11	25.1	001.18	004.22	0266.2	05.37	32.07	001.97	014.61	0289.1	03.05	02.77	27.9
43013	2	781214	045626	002.32	024.68	0278.2	02.86	02.45	27.3	001.13	003.75	0240.1	04.41	35.54	001.99	011.51	0275.5	02.87	02.46	29.5
43013	3	790305	046996	002.33	022.96	0294.2	03.04	02.86	25.3	001.13	004.03	0249.9	05.06	34.13	001.82	009.20	0274.4	02.97	02.79	30.0
43014	0	771215	022995	001.84	031.95	0455.3	02.53	02.18	17.3	000.79	010.15	0341.1	03.13	24.66	005.74	031.52	0407.2	02.40	02.07	18.6
43014	1	780424	023816	004.50	037.28	0482.1	03.11	02.71	15.0	006.26	014.98	0372.3	00.49	21.33	012.35	037.60	0416.7	03.28	02.90	17.2
43014	2	780713	024327	027.64	045.50	0390.6	03.16	03.41	16.1	031.49	018.67	0317.5	04.98	19.85	031.70	043.36	0376.8	03.26	03.68	16.2
43014	3	781003	025756	000.52	017.61	0510.4	01.83	01.59	16.4	000.15	003.70	0372.0	02.16	23.44	000.38	014.54	0458.9	01.90	01.70	18.3
43014	4	781229	026198	000.84	032.01	0475.7	02.67	02.13	16.8	000.22	009.04	0352.5	03.34	24.14	000.91	028.96	0429.8	02.58	02.13	18.5
43015	0	771221	029874	001.46	013.93	0743.3	02.52	02.05	11.5	000.77	003.68	0519.2	03.11	16.81	001.17	011.50	0718.2	02.29	01.85	11.9
43015	1	780405	031204	002.20	019.62	0739.5	02.54	02.22	11.4	001.00	004.36	0524.5	03.56	16.59	001.75	024.15	0696.2	02.25	02.03	11.9
43015	2	780628	032174	001.46	014.31	0725.8	02.16	02.13	11.8	000.89	004.00	0492.8	02.78	17.67	001.67	025.17	0683.9	01.99	02.01	12.1
43015	3	780919	032758	001.62	012.49	0805.6	02.07	01.89	10.7	000.70	003.58	0550.6	02.45	15.88	001.57	007.94	0786.8	01.96	01.80	11.0
43016	0	780103	024920	004.50	045.02	0298.2	02.65	02.29	23.1	001.21	009.13	0233.7	03.20	35.20	003.68	031.64	0280.1	02.34	02.03	25.9
43016	1	780420	026207	005.43	064.47	0286.6	02.25	02.00	21.9	001.59	015.42	0243.1	03.22	32.56	004.68	055.03	0300.8	02.50	02.27	22.3
43016	2	780710	027213	004.59	050.34	0297.5	02.51	02.27	22.7	001.38	009.35	0252.5	03.67	32.65	004.31	047.39	0292.1	02.41	02.21	23.3
43016	3	781002	028137	004.90	054.82	0290.1	02.66	02.40	22.6	001.41	009.61	0246.4	04.24	33.34	004.29	052.08	0287.1	02.54	02.29	23.1
43016	4	781227	029120	005.00	058.69	0279.9	02.69	02.26	22.9	001.49	011.59	0237.4	04.78	34.07	004.02	051.61	0277.1	02.69	02.26	23.9
43017	0	771229	043214	002.80	056.88	0700.0	02.29	01.92	11.1	001.48	032.69	0486.4	01.92	16.35	002.45	045.33	0694.2	02.36	01.97	11.4
43017	1	780501	046049	002.89	048.96	0738.6	03.00	02.55	10.8	001.57	030.57	0499.6	02.69	16.05	002.48	049.74	0692.2	02.59	02.37	11.3
43017	2	780724	048581	003.55	066.80	0694.2	02.26	02.35	10.9	001.94	034.81	0472.2	02.13	16.64	002.93	052.97	0672.3	02.21	02.27	11.5
43017	3	781017	050684	003.95	074.99	0698.2	02.72	02.55	10.7	002.36	038.36	0471.9	02.67	16.46	003.46	072.34	0650.9	02.13	02.01	11.4
43017	4	790124	052711	002.93	058.10	0675.6	02.92	02.45	11.4	001.70	033.58	0498.7	03.73	15.93	002.77	064.64	0666.3	03.00	02.50	11.4
43018	0	780119	094188	003.53	048.86	0640.5	05.95	05.26	12.2	001.31	006.72	0489.7	09.34	17.58	002.90	033.64	0616.4	06.10	05.35	13.0
43018	1	780427	097816	009.10	080.41	0642.0	07.25	05.52	11.1	001.76	008.94	0514.4	10.99	16.61	007.35	068.09	0608.5	07.01	06.29	12.3
43018	2	780803	102865	005.51	081.60	0647.9	06.54	06.27	11.2	001.90	013.86	0535.0	11.03	15.76	004.24	074.47	0623.1	06.43	06.16	11.7
43018	3	781115	108503	005.68	089.23	0621.1	06.51	05.22	11.4	001.86	013.34	0569.0	13.30	14.88	004.41	078.27	0626.0	07.37	05.90	11.6
43018	4	790212	111704	005.61	089.19	0571.9	05.26	04.87	12.2	001.89	012.55	0484.5	09.65	17.38	004.16	076.97	0552.0	05.22	04.85	12.9
43019	0	780127	024081	003.35	035.99	0486.3	03.74	03.13	16.0	001.39	008.00	0370.0	04.16	22.92	003.63	030.96	0452.1	03.41	02.85	17.3
43020	0	780201	040459	004.53	042.60	0288.1	02.07	01.89	24.0	001.18	010.45	0240.1	03.36	34.07	004.11	036.65	0275.8	01.93	01.76	25.6
43020	1	780504	041870	004.21	037.71	0299.1	02.79	02.37	23.9	001.09	009.26	0248.0	04.32	33.34	003.65	030.73	0300.9	02.30	02.39	24.5
43020	2	780807	043159	003.94	038.88	0295.6	02.15	02.53	24.0	001.15	010.74	0243.7	03.43	33.56	003.51	032.67	0285.0	02.05	02.42	25.5
43020	3	781102	045450	005.50	041.80	0302.4	02.43	02.22	23.0	001.04	008.77	0236.7	01.53	34.94	004.07	035.26	0296.0	02.37	02.16	24.3
43020	4	790214	047488	003.23	038.46	0295.0	02.80	02.32	24.2	001.09	008.97	0236.5	04.57	34.91	002.78	030.27	0285.8	02.58	02.15	25.9
43021	0	780201	023713	002.28	013.49	0290.2	03.95	03.55	27.8	001.28	003.12	0253.8	05.71	33.74	002.22	006.12	0276.8	03.98	03.59	30.2
43021	1	780428	025944	002.01	011.21	0292.1	05.00	04.51	23.1	001.37	003.43	0270.3	07.21	31.67	001.91	005.89	0276.2	04.74	04.36	33.4
43021	2	781121	028134	001.85	009.23	0281.0	04.79	03.90	29.4	001.05	002.39	0236.4	06.69	36.42	001.68	004.53	0256.5	04.48	03.69	32.9
43021	3	790213	029171	002.02	015.96	0300.1	03.97	03.46	25.7	001.07	003.41	0242.7	05.99	35.27	001.69	011.40	0266.4	03.74	03.26	30.6
43022	0	780202	023407	000.97	029.20	0490.2	01.12	01.04	15.4	000.38	010.71	0356.3	02.00	23.69	000.69	021.09	0452.5	01.06	00.99	18.1
43022	1	780607	036860	000.58	023.53	0517.7	01.03	01.08	15.9	000.40	009.21	0357.1	02.04	23.79	000.64	019.88	0509.6	01.26	01.28	16.3
43022	2	780829	039774	000.93	032.22	0549.7	01.06	01.06	14.7	000.35	009.24	0372.2	01.67	22.87	000.91	024.17	0495.4	01.03	01.06	16.5
43022	3	781130	041914	001.44	047.28	0460.7	01.45	01.32	16.4	000.70	020.92	0344.5	02.50	23.36	001.30	041.91	0440.2	01.36	01.25	17.3
43022	4	790216	043227	001.67	047.46	0461.4	01.46	01.26	15.4	000.67	018.40	0336.6	02.14	24.13	001.21	037.72	0424.1	01.25	01.08	18.2
43023	0	780207	022075	002.36	044.09	0674.8	02.14	01.88	11.8	003.77	015.84	0502.9	03.06	16.43	024.56	052.28	0569.7	02.06	01.78	12.1
43023	1	780510	023543	002.17	035.76	0688.4	02.43	02.12	11.8	000.75	008.98	0500.7	03.50	17.15	002.38	031.79	0639.0	02.23	01.97	12.7
43023	2	780801	024463	001.88	038.49	0656.8	01.57	01.67	12.4	000.48	013.61	0446.0	01.44	18.41	001.75	044.96	0633.6	01.27	01.39	12.4
43023	3	781023	025497	001.61	037.50	0655.2	01.90	01.51	12.3	000.49	010.99	0472.4	02.53	18.05	001.63	041.92	0627.3	01.54	01.32	12.7
43023	4	790220	026463	002.26	047.56	0657.9	02.35	02.06	12.0	000.85	011.73	0481.7	03.40	17.64	002.71	049.16	0624.1	02.33	02.03	12.4
43024	0	780315	049228	002.01	018.91	0720.5	02.39	02.00	11.7	000.81	007.90	0527.5	03.46	16.35	003.65	019.73	0665.6	02.22	01.88	12.5
43025	0	780324	063096	003.12	050.70	0655.1	03.25	02.98	11.9	001.45	018.40	0487.5	04.05	17.02	002.64	042.42	0634.2	03.24	02.96	12.5
43025	1	780614	067704	002.74	041.18	0595.0	02.85	02.70	13.3	001.38	016.59	0390.7	03.06	21.06	002.65	037.49	0558.8	02.53	02.47	14.1
43025	2	780905	069609	003.50	044.92	0565.5	02.83	02.68	13.7	001.86	019.84	0426.1	04.37	19.15	003.09	038.27	0526.2	02.54	02.37	14.8
43025	3	781201	072447	002.87	043.99	0590.1	02.89	02.53	13.3	001.53	018.08	0418.4	03.91	19.63	002.41	037.09	0563.6	02.77	02.43	14.0
43025	4	790215	076187	002.95	044.94	0607.9	02.81	02.39	12.9	001.75	021.87	0447.2	04.44	18.21	002.90	044.62	0596.3	03.30	02.85	13.1

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
43026	0	780407	052979	001.55	041.43	0738.8	03.06	02.69	11.0	000.47	009.51	0543.6	03.61	15.84	001.34	034.22	0683.6	02.89	02.56	11.9
43026	1	780630	057119	001.70	038.64	0655.0	02.44	02.37	12.3	000.58	010.17	0487.2	03.03	17.56	001.57	035.25	0599.6	02.25	02.21	13.4
43026	2	780921	061900	002.13	047.70	0730.7	02.82	02.72	10.9	000.80	012.99	0547.6	03.71	15.54	002.06	036.70	0691.4	02.77	02.68	11.7
43026	3	781207	064014	002.37	046.11	0713.0	03.15	02.54	11.2	000.76	008.48	0539.2	04.22	15.98	001.73	031.45	0657.6	02.93	02.34	12.4
43026	4	790222	066457	002.35	049.98	0685.9	03.00	02.64	11.5	001.00	013.92	0528.1	04.31	16.03	002.10	036.50	0639.6	03.21	02.83	12.6
43027	0	780410	060411	001.11	016.85	0899.1	01.54	01.47	09.5	000.21	003.32	0705.8	01.51	12.46	001.60	019.37	0843.8	01.41	01.41	10.0
43027	1	780705	060797	001.28	014.82	0913.9	01.54	01.45	09.4	000.19	002.79	0716.0	01.60	12.30	001.44	015.54	0849.0	01.49	01.43	10.1
43027	2	780927	061187	001.27	019.36	0974.8	01.52	01.47	08.8	000.21	003.82	0767.3	01.61	11.46	001.53	017.34	0900.9	01.52	01.46	09.5
43029	0	780627	039682	001.82	007.40	0443.9	05.84	05.51	19.2	001.31	003.64	0337.2	08.44	25.55	001.82	004.57	0416.9	05.32	05.05	20.6
43029	1	780913	042269	001.83	009.01	0467.8	05.99	05.83	18.2	001.17	005.05	0362.7	08.21	23.69	001.66	006.12	0433.3	04.98	04.95	19.7
43029	2	781207	044664	001.61	008.75	0449.8	06.51	05.27	18.9	001.05	003.37	0356.1	08.94	24.31	001.64	004.24	0418.1	05.74	04.72	20.6
43029	3	790227	046562	001.87	010.95	0468.4	06.64	05.77	19.0	001.19	005.07	0377.7	09.63	22.77	001.83	006.87	0432.8	06.00	05.18	19.7
43030	0	781030	029076	001.76	039.55	0729.5	02.20	01.88	11.1	000.57	009.09	0554.3	03.16	15.55	001.19	032.88	0681.6	01.94	01.66	12.0
43030	1	790112	029899	001.06	033.89	0734.1	02.37	02.01	11.2	000.18	006.92	0614.9	02.95	14.16	001.48	036.11	0704.5	02.10	01.83	11.5
43030	2	790329	030886	001.52	034.78	0674.7	02.00	01.74	12.1	000.52	007.06	0521.7	03.06	16.59	002.02	029.02	0651.5	01.99	01.73	12.6
43031	0	781229	034803	000.86	027.22	0919.5	01.31	01.04	09.2	000.11	002.70	0697.3	01.17	12.63	001.40	032.32	0821.8	01.22	00.97	10.1
43031	1	790316	036021	001.85	040.90	0817.3	02.11	01.87	10.0	000.47	007.76	0597.5	01.66	14.51	001.96	037.39	0756.4	01.83	01.64	10.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
54004	0	770929	029353	001.49	012.69	0711.6	02.51	02.73	12.1	000.62	003.77	0531.4	03.73	16.44	001.35	005.48	0684.2	02.55	02.92	12.7
54004	1	780412	031702	001.47	009.90	0725.6	02.93	02.59	11.9	000.67	003.56	0547.9	04.64	15.96	001.30	005.42	0698.4	02.38	02.66	12.4
54004	2	780629	032714	001.41	007.94	0698.0	02.55	02.52	12.4	000.61	004.09	0515.2	03.44	16.94	001.41	007.82	0653.8	02.45	02.41	13.2
54004	3	780925	034223	002.00	016.17	0751.6	02.36	02.34	11.3	000.71	005.33	0572.1	01.47	15.22	001.55	011.11	0716.5	02.46	02.49	12.0
54004	4	781215	035103	001.41	008.82	0744.0	02.94	02.50	11.6	000.67	003.78	0554.8	03.94	15.76	001.60	006.82	0712.8	02.72	02.34	12.1
54005	0	771011	025488	000.59	007.88	0617.2	04.54	04.16	14.1	000.08	000.84	0429.9	04.53	20.55	000.33	004.68	0572.7	03.65	03.32	15.2
54005	1	780317	028784	000.45	004.48	0636.6	04.29	03.51	13.7	000.07	000.35	0459.1	05.83	19.28	000.26	001.69	0604.9	04.35	03.64	14.5
54005	2	780605	030655	000.55	005.75	0614.1	03.25	03.64	14.2	000.11	001.01	0439.7	04.81	20.08	000.58	011.37	0569.6	02.88	03.09	15.0
54005	3	780828	033235	000.67	005.50	0626.7	03.68	03.89	13.9	000.09	000.66	0437.6	04.65	20.20	000.58	008.02	0583.6	03.07	03.31	14.8
54005	4	781121	034571	000.60	004.85	0608.8	04.32	03.52	14.3	000.09	000.06	0451.6	05.65	19.62	000.32	001.33	0565.8	04.13	03.35	15.5
54006	0	771013	018148	000.95	001.57	0602.8	05.85	05.66	14.6	000.50	000.63	0482.0	09.98	18.30	000.81	000.76	0574.5	06.02	05.78	15.3
54006	1	780322	019324	001.17	001.70	0609.2	05.75	05.35	14.4	000.57	000.84	0482.4	09.54	18.26	001.06	000.47	0581.5	05.79	05.37	15.1
54006	2	780608	019801	001.02	001.80	0652.8	04.79	04.92	13.5	000.54	000.98	0475.2	08.39	18.53	000.81	001.07	0626.8	05.04	05.19	14.0
54006	3	780831	020484	001.66	002.70	0673.7	04.79	04.92	13.0	000.76	001.00	0501.6	08.43	17.54	000.99	001.12	0634.0	05.08	05.13	13.8
54006	4	781211	021413	001.36	007.59	0651.1	05.45	04.52	13.3	000.54	000.85	0479.5	09.96	18.38	000.75	001.21	0607.9	05.30	04.48	14.4
54007	0	771018	043514	001.15	006.54	0642.1	02.30	02.14	13.5	000.51	000.77	0457.9	02.97	19.25	000.88	000.97	0620.8	02.36	02.29	14.1
54007	1	780318	046363	001.47	006.55	0657.3	02.47	02.17	13.2	000.51	001.26	0508.2	03.79	17.33	000.88	001.32	0620.0	02.34	02.22	14.1
54007	2	780602	049359	001.31	006.16	0658.9	02.12	02.18	13.2	000.51	001.09	0464.1	02.52	18.97	001.04	003.10	0618.6	02.12	02.19	14.1
54007	3	780828	053275	001.20	008.04	0655.5	02.51	02.72	13.2	000.62	001.52	0474.7	03.49	18.51	000.99	003.01	0611.8	02.62	02.86	14.3
54007	4	781127	054678	001.40	008.13	0638.9	03.15	02.63	13.5	000.60	001.49	0463.4	04.37	18.96	001.03	003.37	0592.7	03.33	02.78	14.7
54008	0	771012	015619	000.85	002.71	0654.6	04.07	03.69	13.4	000.33	000.69	0501.2	03.70	17.62	000.59	001.13	0621.5	04.16	03.82	14.1
54008	1	780320	017987	001.04	005.94	0670.8	04.39	03.85	13.0	000.43	000.84	0525.2	04.49	16.80	000.65	001.53	0632.0	04.41	03.85	13.9
54008	2	780607	019767	000.87	001.54	0641.9	04.15	03.98	13.7	000.41	000.58	0482.0	04.08	18.31	000.73	000.95	0596.7	04.51	04.24	14.7
54008	3	780829	021949	001.10	001.95	0648.9	03.54	03.52	13.5	000.48	000.75	0492.3	03.58	17.91	000.77	000.97	0621.1	03.95	03.94	14.1
54008	4	781206	023697	001.01	002.48	0644.1	04.51	03.80	13.6	000.44	000.77	0497.1	04.74	17.75	000.60	000.72	0612.1	04.72	03.98	14.4
54009	0	771019	034195	000.32	002.00	0584.5	04.54	04.27	15.1	000.05	000.03	0447.3	04.50	19.82	000.22	000.91	0544.6	04.30	04.11	16.2
54009	1	780320	040072	000.48	003.54	0612.7	03.99	03.43	14.3	000.33	000.05	0471.8	04.83	18.79	000.42	003.84	0588.1	02.57	02.33	14.8
54010	0	771020	042099	000.71	004.13	0655.2	04.74	04.65	13.4	000.33	001.83	0458.0	05.32	19.20	000.70	002.10	0622.2	04.36	04.13	14.1
54010	1	780321	047755	000.88	002.26	0676.2	06.41	05.59	13.0	000.52	003.00	0504.1	07.37	17.37	000.95	002.53	0656.2	05.83	05.27	13.3
54010	2	780530	049667	000.90	005.03	0672.0	05.88	05.23	13.0	000.47	003.38	0502.3	07.28	17.42	000.73	002.82	0636.4	05.33	04.75	13.7
54010	3	780822	052797	001.37	009.14	0737.8	03.96	03.34	11.7	000.41	003.16	0524.3	04.86	16.71	000.76	003.90	0673.7	03.44	03.42	13.0
54010	4	781117	056053	014.36	013.41	0780.2	04.34	03.92	10.5	010.14	004.22	0549.1	05.26	15.08	012.59	005.45	0719.7	04.37	03.92	11.5
54011	0	771026	045295	000.92	002.18	0781.3	01.96	01.72	11.3	000.09	000.12	0581.1	02.13	15.25	001.01	006.35	0730.2	01.97	01.73	11.9
54011	1	780321	054956	001.01	009.82	0822.3	01.88	01.99	10.5	000.12	002.88	0697.9	02.47	12.62	001.02	017.40	0860.6	02.15	01.97	09.9
54011	2	780606	059492	001.01	007.41	0828.0	01.42	01.45	10.5	000.12	001.23	0599.7	01.60	14.73	000.87	016.77	0911.0	01.80	01.89	09.4
54011	3	780901	062929	001.18	004.61	0845.5	01.66	01.55	10.4	000.20	000.56	0620.2	01.81	14.26	001.10	008.38	0781.2	01.59	01.58	11.1
54011	4	781219	067323	002.06	038.93	0831.6	02.12	01.72	09.9	000.19	002.88	0683.1	03.28	12.89	001.78	034.45	0848.6	02.54	02.07	09.7
54012	0	771115	025353	000.82	006.11	0593.7	04.18	03.60	14.6	000.12	000.36	0409.7	05.25	21.60	000.40	004.96	0550.1	04.58	03.96	15.8
54012	1	780322	028056	001.11	009.32	0614.2	04.55	04.13	14.0	000.17	004.46	0484.6	04.38	18.02	000.59	012.28	0585.6	03.77	03.42	14.6
54012	2	780613	031314	000.58	003.84	0590.2	04.98	04.64	14.8	000.11	000.74	0439.3	05.85	20.12	000.46	006.36	0558.6	05.02	04.66	15.5
54012	3	780830	033531	001.18	015.66	0630.6	03.80	04.34	13.5	000.58	023.85	0466.0	04.06	17.55	002.38	047.40	0560.4	03.78	04.07	13.8
54012	4	781127	035672	001.00	008.56	0594.5	05.11	04.32	14.5	000.15	000.62	0447.7	06.38	19.74	000.55	007.59	0560.1	05.02	04.23	15.4
54013	0	771117	021041	000.95	003.16	0392.5	02.79	02.44	22.1	000.35	000.48	0284.3	03.80	30.99	000.76	001.86	0375.0	02.78	02.42	23.3
54013	1	780327	023467	001.13	003.60	0412.5	02.62	02.41	21.0	000.37	000.68	0289.4	03.28	30.41	000.98	003.07	0402.0	02.56	02.43	21.6
54013	2	780613	024692	001.03	004.81	0394.7	02.57	02.28	21.9	000.38	000.64	0263.0	03.22	33.44	000.89	003.15	0370.4	02.38	02.15	23.4
54014	0	771129	072277	000.52	003.09	0656.7	03.41	02.93	13.4	000.17	000.13	0450.1	04.44	19.67	000.39	001.50	0715.4	03.14	02.71	12.3
54014	1	780428	075982	001.46	011.81	0612.5	07.14	06.32	13.9	000.29	000.32	0469.1	06.61	18.85	000.79	001.40	0573.9	05.97	06.13	15.3
54014	2	780717	078005	001.58	037.76	0634.5	03.20	03.07	12.7	000.27	001.87	0457.6	04.65	19.22	000.90	014.25	0640.6	03.33	03.14	13.3
54014	3	781006	080871	001.93	048.30	0633.7	03.57	03.23	12.6	000.26	002.21	0475.2	05.02	18.50	001.29	021.84	0615.4	03.53	03.31	13.5
54014	4	790124	083348	002.92	057.03	0599.1	03.42	02.89	12.7	000.39	003.22	0451.4	04.51	19.38	001.71	027.10	0591.1	03.37	02.85	13.8
54015	0	771203	009126	002.18	026.65	0674.7	08.94	07.30	12.3	000.69	006.32	0539.7	10.71	16.07	001.90	022.43	0637.5	09.14	08.17	13.0
54015	1	780403	010444	002.36	025.18	0677.9	09.31	08.32	12.2	000.92	005.15	0532.3	11.29	16.33	001.95	021.07	0658.3	10.20	08.93	12.7
54015	2	780601	011002	001.29	015.26	0640.6	04.42	04.26	13.3	000.56	005.23	0502.6	06.57	17.30	001.33	013.37	0626.8	04.84	04.68	13.6
54015	3	780823	012090	001.87	030.20	0678.4	05.80	05.42	12.1	000.68	005.14	0494.0	08.31	17.59	001.53	026.93	0640.5	05.94	05.55	12.9
54015	4	781117	013207	001.68	030.98	0658.4	05.94	05.36	12.4	000.59	005.46	0493.5	08.09	17.60	001.62	027.40	0621.5	06.14	05.26	13.2
54016	0	771202	015941	001.11	009.33	0823.1	04.09	03.90	10.5	000.45	002.87	0588.4	05.12	14.92	001.25	008.40	0764.7	03.60	03.40	11.3
54016	1	780325	017180	001.14	009.86	0831.0	04.84	04.37	10.4	000.55	003.31	0605.5	06.15	14.48	001.19	007.66	0777.8	04.56	04.25	11.1
54016	2	780601	018221	001.09	007.18	0804.2	03.61	03.51	10.8	000.45	002.66	0568.5	04.99	15.45	001.09	008.16	0755.3	03.41	03.30	11.4
54016	3	780818	019362	001.40	008.48	0831.2	04.57	04.39	10.4	000.60	002.62	0585.1	06.12	15.00	001.35	004.94	0780.5	04.41	04.26	11.1
54016	4	781121	021022	001.22	007.98	0805.0	05.34	04.32	10.8	000.55	002.55	0579.1	06.65	15.16	001.23	004.84	0755.9	04.89	03.98	11.5
54017	0	771208	042085	001.21	011.19	0394.0	04.73	03.89	21.3	000.61	005.04	0250.8	04.23	34.02	001.03	008.31	0361.0	02.51	02.05	23.5
54017	1	780411	049765	001.40	010.98	0386.9	02.82	02.52	21.[illegible]	000.71	005.31	0264.2	04.87	32.27	001.33	007.94	0371.9	02.56	02.34	22.3
54017	2	780630	055443	001.93	012.02	0381.4	01.86	01.85	21.8	000.47	004.65	0265.2	03.33	32.37	001.70	009.33	0364.1	01.79	01.77	23.0
54017	3	780915	060609	003.25	047.16	0415.0	01.25	01.15	17.8	000.37	006.29	0302.9	02.62	28.25	001.71	013.31	0416.3	01.53	01.55	20.3
54017	4	781205	065583	001.35	014.54	0379.9	02.96	02.50	21.8	000.71	004.98	0257.6	05.08	33.13	001.06	011.22	0357.1	02.78	02.16	23.4

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
54018	0	771214	014628	000.72	013.06	0478.8	01.67	01.52	17.7	000.10	001.44	0352.8	02.08	24.95	000.61	008.11	0456.4	01.66	01.51	18.8
54018	1	780502	016222	000.46	007.49	0497.7	02.16	01.93	17.4	000.10	001.40	0372.7	02.09	23.63	000.52	003.70	0473.3	02.27	01.97	18.4
54018	2	780728	017555	000.71	003.24	0471.4	05.16	05.45	13.5	000.13	000.45	0357.2	06.79	24.75	000.56	000.91	0461.8	04.98	05.36	19.0
54018	3	781023	019323	001.83	044.11	0501.8	01.77	01.49	15.4	000.23	004.18	0398.7	02.50	21.84	001.66	036.88	0466.4	01.70	01.43	16.7
54018	4	790131	019561	000.72	012.39	0474.8	01.84	01.48	17.9	000.11	001.47	0349.8	02.12	25.16	000.61	009.00	0452.2	01.73	01.41	18.9
54019	0	771215	032276	001.37	009.58	0301.8	04.67	04.33	27.6	000.80	004.11	0230.3	05.58	37.06	001.32	006.19	0285.8	04.37	04.11	29.5
54019	1	780418	039249	001.25	009.57	0311.2	04.73	04.32	25.9	000.78	003.23	0232.6	05.61	36.92	001.17	006.77	0297.9	04.27	03.93	28.4
54019	2	780908	046568	001.05	011.37	0306.0	02.91	02.69	27.1	000.68	004.55	0219.4	04.91	38.78	000.94	008.45	0293.8	02.93	02.69	28.6
54019	3	781130	050121	001.04	010.14	0294.9	02.87	02.55	28.2	000.71	004.20	0213.9	04.51	39.81	000.82	006.02	0280.6	02.91	02.58	30.3
54019	4	790216	053151	001.18	010.06	0339.4	05.11	04.49	24.7	000.79	003.13	0228.2	05.61	37.65	001.10	007.65	0322.3	04.61	04.03	26.2
54020	0	771221	019058	001.47	009.53	0309.2	03.10	02.50	27.0	000.80	004.18	0211.5	05.38	40.20	001.56	005.52	0293.4	02.97	02.42	28.8
54020	1	780413	022781	001.71	013.40	0298.5	03.07	02.92	27.3	000.92	008.14	0226.8	05.65	36.57	001.80	009.02	0284.2	02.37	02.61	29.1
54020	2	780707	024805	001.17	010.23	0313.2	03.04	03.05	26.6	000.73	005.65	0206.7	04.98	40.70	000.98	006.42	0292.6	02.84	02.81	29.0
54021	0	771220	028012	001.21	012.25	0487.7	02.55	02.05	17.4	000.29	003.24	0409.6	01.97	21.34	001.51	009.93	0449.4	02.71	02.18	18.8
54021	1	780424	030717	001.38	012.61	0450.5	02.29	01.98	19.7	000.45	004.11	0389.2	01.95	22.33	001.71	011.56	0425.8	02.31	02.02	19.7
54021	2	780721	032922	002.36	048.90	0400.9	02.69	02.81	19.3	001.04	006.61	0348.9	02.55	24.46	002.57	044.02	0378.0	02.90	03.08	19.4
54021	3	781004	034691	001.92	023.18	0398.9	05.29	05.02	20.1	001.08	004.97	0340.3	06.99	25.22	001.90	014.74	0392.6	05.20	04.98	21.0
54021	4	790102	037057	002.12	027.28	0417.3	06.71	05.23	19.0	001.05	005.16	0335.0	08.76	25.60	002.08	030.51	0388.0	05.60	04.35	20.0
54022	0	771230	004468	002.04	010.91	0523.7	04.20	03.60	15.2	000.73	005.36	0437.3	03.54	19.79	001.73	009.67	0497.1	03.68	03.16	17.1
54022	1	780511	004891	001.84	010.66	0557.1	04.05	03.57	15.3	000.74	005.57	0482.8	04.38	17.95	001.78	008.93	0522.8	03.70	03.23	16.3
54022	2	780731	005344	001.43	012.85	0574.0	02.80	02.51	14.8	000.43	005.93	0492.6	03.13	17.62	001.23	013.78	0506.4	02.25	02.10	16.6
54022	3	781024	005696	001.57	010.91	0565.5	03.70	03.13	15.1	000.56	005.24	0488.5	04.10	17.79	001.45	012.97	0544.4	03.41	02.88	15.5
54022	4	790129	006521	001.49	011.39	0561.0	03.00	02.39	15.2	000.32	005.16	0469.9	03.04	18.51	001.29	015.28	0512.2	02.46	01.96	16.4
54023	0	780107	042304	003.13	014.54	0454.5	03.65	03.20	18.2	000.58	005.37	0323.7	04.97	26.55	001.84	014.26	0418.0	03.43	03.03	19.8
54023	1	780419	046623	001.87	021.00	0499.0	03.62	03.39	15.5	000.57	004.95	0316.6	05.16	27.19	002.10	016.94	0418.7	03.53	03.31	19.5
54023	2	780712	049104	001.92	018.71	0450.1	02.15	02.19	18.3	000.36	004.78	0294.2	03.06	29.28	001.73	015.40	0407.7	02.36	02.30	20.2
54023	3	781006	052975	002.20	017.00	0443.6	03.12	02.59	18.6	000.44	004.71	0307.7	03.98	28.02	001.78	012.49	0421.5	03.09	02.61	19.8
54024	0	780106	041688	001.44	017.10	0484.0	03.45	03.02	17.2	000.29	000.33	0387.4	03.58	22.80	000.63	001.58	0464.1	03.54	03.07	18.9
54024	1	780503	045260	000.99	009.97	0481.8	03.27	02.78	17.7	000.21	000.32	0379.3	03.26	23.31	000.46	000.77	0458.6	03.29	02.78	19.2
54024	2	780802	047478	001.12	010.17	0465.1	03.05	03.16	18.3	000.27	000.33	0353.1	03.23	25.02	000.76	002.01	0445.8	03.34	03.43	19.6
54025	0	780109	023378	001.15	014.71	0469.1	07.07	06.16	17.9	000.23	002.42	0365.5	07.57	23.96	001.11	012.64	0438.6	06.17	05.39	19.1
54025	1	780501	026068	003.27	059.27	0439.7	05.91	05.20	15.3	000.77	011.09	0380.3	05.96	22.16	003.16	061.28	0408.5	05.39	04.73	17.2
54025	2	780725	029782	001.82	038.25	0421.4	05.09	05.77	18.2	000.32	004.09	0330.9	05.74	26.21	001.84	039.02	0387.0	04.73	05.40	19.5
54025	3	781016	033945	003.24	048.58	0435.3	05.81	05.39	17.0	000.70	005.10	0397.0	06.53	21.78	003.76	043.09	0405.3	05.57	05.21	18.2
54025	4	790131	036365	022.53	032.75	0445.1	06.13	04.89	15.6	010.67	005.10	0392.5	08.38	20.42	019.75	028.21	0414.7	05.37	04.31	17.0
54026	0	780113	036496	002.10	007.33	0333.4	01.80	01.59	25.2	000.14	001.09	0259.5	02.17	33.89	003.04	006.86	0307.0	01.73	01.53	27.0
54026	1	780501	039037	001.62	011.69	0372.3	01.67	01.46	22.4	000.15	002.28	0269.2	02.38	32.45	002.48	006.15	0316.6	01.52	01.31	26.5
54026	2	780719	040272	009.89	018.87	0304.9	01.77	01.77	24.2	000.27	002.18	0248.2	02.78	35.12	003.81	008.94	0293.0	01.86	01.83	27.7
54026	3	780928	042062	011.43	026.78	0305.8	01.76	01.53	23.1	000.22	002.02	0244.9	02.64	35.65	002.78	008.91	0301.9	01.97	01.87	27.3
54026	4	790103	044651	003.39	012.00	0305.9	02.08	01.65	25.4	000.26	002.52	0228.3	03.18	38.05	004.15	013.66	0286.4	02.48	01.94	27.6
54027	0	780110	030068	001.72	024.21	0554.6	02.29	02.00	14.8	000.83	004.42	0440.8	03.12	19.69	001.59	021.02	0524.0	02.09	01.82	15.7
54027	1	780425	032217	001.48	025.38	0557.2	01.84	01.73	14.7	000.58	004.85	0467.7	02.44	18.58	001.33	021.13	0532.3	01.56	01.61	15.5
54027	2	780718	033997	001.93	024.52	0551.9	01.63	01.58	14.9	000.85	004.33	0440.2	02.32	19.72	001.77	019.95	0514.3	01.56	01.61	16.0
54027	3	781016	035880	002.09	024.30	0561.5	01.95	01.83	14.6	001.03	004.25	0442.1	02.81	19.62	001.88	018.18	0523.2	01.81	01.70	15.9
54027	4	790122	037180	001.71	023.80	0579.4	02.20	01.84	14.3	000.66	004.80	0451.4	03.00	19.24	001.53	020.84	0548.4	02.05	01.70	15.1
54028	0	780111	036034	001.62	006.46	0309.5	03.38	03.00	27.3	000.80	001.73	0214.7	04.97	40.32	002.21	003.75	0284.4	03.17	02.80	29.8
54028	1	780425	037727	002.02	025.69	0335.5	02.01	01.34	23.2	000.66	004.99	0252.1	02.75	33.84	002.61	018.19	0318.2	01.34	01.71	24.9
54028	2	780726	039499	002.45	046.18	0356.3	01.33	01.31	20.3	000.99	013.67	0272.6	01.63	29.84	002.47	042.75	0336.8	01.10	01.16	21.5
54028	3	781030	041276	002.37	040.20	0395.6	01.93	01.67	19.3	000.74	009.67	0306.0	02.36	27.41	002.09	037.19	0358.6	01.73	01.51	20.9
54029	0	780113	033817	001.81	012.55	0806.5	08.32	07.20	10.7	000.55	004.92	0675.6	10.98	12.95	001.32	011.75	0779.2	08.53	07.31	11.0
54029	1	780427	036344	001.32	020.09	0703.3	06.01	05.97	12.0	000.67	004.05	0504.8	08.77	17.28	001.13	012.42	0656.0	06.53	06.49	13.0
54029	2	780724	039951	001.51	018.81	0686.9	06.39	06.20	12.3	000.79	004.02	0495.9	08.75	17.57	001.40	015.43	0656.9	06.83	06.59	12.9
54029	3	781009	041597	001.36	019.97	0677.4	05.92	05.82	12.4	000.70	003.96	0482.2	07.44	18.08	001.17	015.26	0636.3	05.97	05.89	13.3
54029	4	790108	045451	002.12	019.96	0662.7	08.16	06.43	12.7	000.85	003.62	0483.2	10.54	18.04	001.53	016.96	0682.9	08.65	06.80	12.4
54030	0	780112	026110	001.43	011.75	0472.7	03.14	02.64	19.9	000.70	003.59	0287.6	04.47	30.01	001.89	009.48	0402.3	02.80	02.36	20.9
54030	1	780428	028219	001.69	011.67	0416.9	03.14	02.36	20.1	000.70	003.95	0275.6	04.47	31.23	001.49	009.89	0397.0	02.59	02.47	21.2
54030	2	780731	029492	001.70	012.31	0387.9	02.38	02.34	21.5	000.70	004.09	0247.9	03.42	34.56	001.52	009.45	0365.1	01.97	02.04	23.0
54030	3	781025	031240	001.45	010.61	0421.0	03.17	02.71	20.1	000.73	003.78	0273.2	04.70	31.50	001.24	008.49	0394.1	02.80	02.37	21.5
54030	4	790129	032879	001.99	010.34	0372.4	02.39	01.90	22.5	000.67	003.82	0248.9	03.72	34.50	001.97	007.70	0353.6	02.16	01.73	23.8
54031	0	780116	031929	001.00	008.44	0328.5	03.32	02.89	25.7	000.84	003.41	0236.4	05.90	36.28	000.93	005.34	0312.3	03.07	02.65	27.4
54031	1	780428	034954	000.94	006.62	0328.1	03.30	02.95	25.0	000.36	002.62	0228.9	05.89	37.62	000.87	003.86	0318.3	03.24	02.95	27.1
54031	2	780906	039945	000.94	009.08	0313.8	03.16	02.83	25.8	000.78	004.29	0219.6	05.73	38.76	000.91	007.45	0300.1	03.11	02.88	28.1
54031	3	781130	043275	000.62	009.08	0346.2	01.81	01.54	24.5	000.54	002.22	0226.9	03.61	38.22	000.53	006.28	0329.3	01.73	01.26	26.3
54031	4	790214	046298	000.68	008.73	0345.7	02.09	01.74	24.5	000.64	002.20	0232.0	04.30	37.34	000.61	005.89	0332.8	01.89	01.56	25.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
54032	0	780116	025435	001.85	020.40	0377.4	01.75	01.49	21.3	000.26	002.64	0240.1	02.06	36.19	000.83	012.58	0391.9	01.82	01.58	21.4
54032	1	780502	027905	001.47	011.76	0384.1	02.88	02.44	21.8	000.25	001.44	0276.9	03.36	31.67	000.57	006.07	0401.4	02.82	02.40	21.4
54032	2	780721	029751	001.69	012.23	0375.3	02.59	02.38	22.2	000.45	002.59	0259.6	03.31	33.45	001.30	010.44	0386.6	02.56	02.44	21.7
54032	3	781002	030740	002.72	028.49	0405.8	02.14	01.95	19.3	000.50	003.63	0273.6	02.74	31.57	001.50	017.87	0388.3	01.97	01.83	21.3
54032	4	790103	032612	002.48	025.50	0419.7	02.95	02.30	19.0	000.47	004.26	0289.7	04.04	29.77	001.37	013.42	0382.8	02.63	02.06	21.7
54033	0	780121	104597	001.14	006.56	0340.7	02.45	02.09	25.0	000.06	001.46	0249.7	03.74	35.16	002.45	023.47	0315.9	02.23	01.88	24.5
54033	1	780427	116813	001.59	008.89	0323.7	03.22	02.39	25.9	000.25	002.68	0248.8	05.06	34.95	000.70	005.32	0334.2	03.13	02.91	25.7
54033	2	780731	129505	001.42	010.50	0300.1	02.71	02.49	27.6	000.52	003.77	0245.5	05.33	35.05	001.71	007.22	0294.0	03.10	02.83	28.5
54033	3	781030	141228	001.31	008.80	0335.3	03.56	03.09	25.1	000.28	002.75	0250.1	06.15	34.73	001.89	006.79	0319.7	03.80	03.30	26.3
54033	4	790129	143978	001.51	009.85	0321.2	02.40	01.95	26.0	000.40	003.97	0226.6	02.54	37.88	002.09	017.43	0288.9	02.05	01.65	27.4
54034	0	780329	043498	000.88	012.54	0367.6	02.14	01.98	22.7	000.38	003.89	0246.9	04.01	34.88	000.95	008.65	0350.9	02.23	02.07	24.1
54034	1	780612	045634	000.98	014.57	0336.5	01.92	01.89	24.5	000.39	003.60	0209.8	03.31	40.93	001.11	010.09	0323.6	01.96	02.01	25.8
54034	2	780901	047694	000.88	016.93	0365.5	01.90	01.83	22.5	000.45	003.65	0239.6	03.89	35.94	001.00	008.72	0328.3	02.04	01.97	25.6
54034	3	781201	049896	001.00	013.29	0338.5	01.83	01.52	24.5	000.37	007.60	0226.0	02.92	37.09	000.90	012.69	0321.3	01.71	01.51	25.7
54034	4	790220	051862	001.06	014.49	0314.0	01.91	01.51	25.1	000.42	008.28	0227.7	03.20	36.63	001.13	015.64	0306.5	01.85	01.57	26.4
54035	0	780404	043593	001.96	054.27	0676.8	02.28	01.99	11.5	001.51	057.52	0500.1	03.05	14.90	001.27	045.19	0639.9	01.98	01.72	12.4
54035	1	780621	046069	001.86	052.07	0642.6	02.25	02.17	12.1	001.84	059.84	0494.6	03.66	14.92	001.71	051.51	0605.5	01.36	01.77	12.8
54035	2	780906	048648	001.82	061.87	0667.2	02.02	01.87	11.5	001.82	076.93	0468.3	02.28	14.90	001.89	073.99	0617.4	01.53	01.44	11.9
54035	3	781212	050671	002.16	047.99	0639.3	02.22	01.86	12.3	001.82	044.73	0464.0	03.17	16.42	001.87	046.02	0595.7	01.93	01.62	13.1
54035	4	790326	054624	002.12	070.94	0614.0	01.71	01.51	12.1	001.62	069.64	0448.9	02.36	15.74	002.26	082.49	0563.1	01.26	01.12	12.6
54036	0	780405	023567	000.96	010.56	0459.2	02.59	02.31	18.5	000.58	003.27	0292.3	04.67	29.63	000.70	007.97	0437.4	02.41	02.14	19.6
54036	1	780622	025580	001.28	010.21	0448.2	02.09	01.95	18.9	000.43	003.06	0297.4	03.75	29.21	000.83	008.00	0440.6	02.32	02.24	19.6
54036	2	780913	027527	001.02	011.73	0444.0	02.30	02.14	19.0	000.57	003.55	0285.9	04.29	30.24	000.74	008.96	0429.8	02.20	02.04	19.8
54036	3	781212	030364	000.84	010.03	0442.6	02.52	02.12	19.2	000.56	003.23	0274.1	04.39	31.57	000.76	007.60	0428.8	02.35	01.97	20.0
54036	4	790226	032330	000.90	012.24	0483.8	02.61	02.23	17.5	000.58	004.35	0288.3	04.73	29.86	000.65	008.63	0465.0	02.46	02.12	18.4
54037	0	780412	035821	000.78	011.15	0457.2	04.03	03.53	18.6	000.47	003.94	0278.3	06.02	31.01	000.88	010.71	0445.3	03.51	03.00	19.0
54037	1	780707	038811	000.85	011.54	0488.6	03.75	03.70	17.4	000.49	005.43	0299.3	06.03	28.67	000.67	009.90	0469.3	03.15	03.10	18.2
54037	2	780920	042183	001.01	012.08	0481.0	03.89	03.51	17.6	000.59	003.56	0301.5	07.03	28.71	000.70	008.44	0462.7	03.36	03.21	18.5
54037	3	781221	044960	000.84	011.14	0503.4	04.00	03.54	15.9	000.51	004.85	0300.4	06.67	28.64	000.72	007.97	0472.8	03.55	03.13	18.1
54037	4	790308	047434	000.74	009.05	0437.3	02.65	02.28	19.5	000.49	004.50	0274.5	05.39	31.32	000.63	007.30	0428.4	02.12	01.86	20.0
54038	0	780412	047277	002.08	010.42	0406.4	01.92	01.77	20.7	000.49	003.56	0293.6	02.63	29.48	002.10	008.55	0403.0	01.79	01.65	20.9
54038	1	780901	054653	001.48	011.88	0415.9	01.91	02.34	20.2	000.27	003.84	0290.0	02.12	29.87	001.50	008.18	0386.1	01.78	01.87	21.9
54038	2	781129	057468	001.01	009.79	0451.5	02.14	01.92	18.9	000.16	003.14	0314.0	01.99	27.76	000.97	007.96	0415.9	01.83	01.63	20.5
54038	3	790214	059275	001.48	011.25	0386.1	02.68	02.29	21.7	000.70	004.09	0272.0	04.36	31.60	001.43	009.32	0370.6	02.39	02.04	22.7
54039	0	780413	062100	000.90	027.27	0728.0	03.97	03.52	11.5	000.36	003.26	0531.2	05.15	16.50	000.88	027.21	0723.5	04.23	03.82	11.5
54039	1	780630	064119	000.92	024.15	0744.8	04.15	04.07	11.3	000.39	004.32	0526.8	04.84	16.58	000.96	020.80	0672.2	03.11	03.10	12.5
54039	2	780926	066279	001.30	030.36	0765.0	03.08	03.17	10.9	000.42	004.60	0566.7	04.12	15.42	000.82	023.67	0729.8	02.80	02.85	11.5
54039	3	781213	067733	001.20	020.36	0692.3	03.96	03.26	12.2	000.44	002.79	0505.9	04.64	17.33	001.16	021.85	0653.2	03.04	02.51	12.8
54039	4	790226	069710	001.40	027.82	0706.8	03.71	03.16	11.7	000.41	002.88	0522.9	04.32	16.77	000.95	019.83	0677.4	02.90	02.45	12.4
54040	0	780421	026309	001.11	029.93	0471.4	01.67	01.53	17.0	000.28	005.37	0341.5	01.99	25.28	000.85	019.69	0489.4	01.88	01.71	16.9
54040	1	780711	027253	001.56	039.42	0450.1	01.33	01.20	17.2	000.35	006.19	0316.7	01.68	27.07	001.11	028.70	0441.9	01.43	01.32	18.3
54040	2	781003	028913	001.52	030.15	0467.5	01.56	01.43	17.1	000.30	007.18	0318.1	01.70	26.85	001.14	025.32	0456.7	01.52	01.43	17.7
54040	3	781229	030785	001.02	027.01	0447.6	01.44	01.13	18.0	000.26	004.37	0292.5	01.99	29.54	001.04	025.42	0425.0	01.46	01.15	18.9
54040	4	790314	032197	000.85	024.01	0502.0	01.62	01.48	16.3	000.20	004.38	0296.1	01.55	29.21	000.99	023.43	0457.0	01.50	01.49	17.8
54041	0	780421	035071	001.33	040.19	0764.9	04.61	04.07	10.7	000.95	018.30	0524.5	06.28	15.94	001.27	034.40	0703.2	04.57	04.01	11.6
54041	1	780714	036510	001.42	044.77	0737.8	03.72	03.30	10.9	001.30	025.22	0498.8	05.51	16.35	001.38	040.28	0705.0	03.97	04.23	11.4
54041	2	780927	037841	001.65	044.75	0745.1	03.37	03.28	10.8	000.70	014.63	0525.2	04.87	16.11	002.07	057.27	0691.6	03.09	02.98	11.2
54041	3	790105	042147	000.91	034.49	0737.1	03.41	02.74	11.2	000.21	005.25	0537.0	04.39	16.24	000.76	028.47	0693.9	03.47	02.77	11.9
54041	4	790329	044444	001.08	043.91	0778.8	03.15	02.73	10.4	000.21	006.79	0573.6	04.34	15.16	001.10	039.04	0721.8	03.47	02.98	11.2
54042	0	780503	032663	000.90	008.11	0556.4	04.19	03.57	15.5	000.31	001.82	0362.7	04.78	24.19	000.64	003.95	0530.3	03.81	03.21	16.4
54042	1	780727	034875	001.02	006.50	0562.3	03.96	03.73	15.4	000.37	002.13	0369.0	04.35	23.74	000.77	003.57	0543.2	03.93	03.82	16.0
54042	2	781018	039145	001.01	006.79	0602.1	05.15	04.49	14.4	000.36	001.55	0383.9	05.58	22.89	000.59	003.33	0584.1	04.76	04.17	15.0
54042	3	790102	042662	001.03	005.41	0564.9	06.05	04.73	15.4	000.30	001.19	0361.5	06.90	24.34	000.88	003.60	0547.7	05.88	04.61	15.9
54042	4	790315	044497	001.13	006.69	0570.6	05.05	04.41	15.2	000.34	001.71	0371.4	05.98	23.64	000.87	003.44	0545.5	04.74	04.16	16.0
54043	0	781221	029202	001.97	011.78	0307.2	04.33	03.75	26.7	000.94	003.58	0221.6	05.03	38.52	001.87	006.40	0277.7	03.61	03.12	30.1
54043	1	790307	030348	001.77	011.01	0289.6	04.29	03.72	23.4	001.03	004.09	0220.4	05.55	38.53	001.88	006.21	0282.0	04.19	03.57	29.7
54043	2	790806	033765	001.75	010.44	0290.1	04.34	04.01	28.4	001.06	004.08	0211.5	05.16	40.07						
54043	3	791018	035023	002.15	014.88	0290.6	04.02	03.73	27.6	001.32	007.19	0213.6	05.07	38.71						
54043	4	791212	035953	001.84	013.07	0289.9	03.44	03.02	28.0	001.09	006.05	0218.4	04.96	38.34						
54044	0	790105	016355	001.97	031.67	0331.9	02.49	01.97	22.9	001.17	014.96	0217.3	02.83	36.26	001.53	018.21	0331.1	02.67	02.12	24.3
54044	1	790329	016355	001.88	022.84	0353.2	02.80	02.42	22.4	000.85	005.15	0241.8	03.86	35.12	001.53	017.26	0339.6	02.43	02.03	23.3
54044	2	790809	016352	002.25	009.28	0361.8	02.51	02.68	23.1	000.74	003.00	0264.2	03.82	32.69						
54044	3	791105	016352	001.51	008.36	0364.9	03.31	03.00	23.2	000.87	003.42	0305.5	07.16	28.27						
54044	4	800102	016352	001.50	012.52	0333.9	02.68	02.48	24.7	000.64	002.23	0232.8	03.78	37.21						

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

EPA NO	SEQ	DATE	ODOM	FTP HC	CO	CO2	NOX	NOXC	MPG	HFET HC	CO	CO2	NOX	MPG	HS FTP HC	CO	CO2	NOX	NOXC	MPG
64002	0	771008	024034	000.82	030.65	0379.8	02.64	02.54	23.6	000.26	016.26	0322.6	04.67	25.41	000.72	026.07	0371.1	02.67	02.55	21.4
64002	1	780320	029372	000.81	026.69	0402.0	02.63	02.24	19.9	000.13	011.10	0326.4	04.44	25.76	000.58	020.22	0376.0	02.51	02.14	21.6
64002	2	780606	032059	000.98	030.94	0394.0	02.35	02.34	19.9	000.27	015.54	0323.4	04.35	25.43	000.82	023.73	0374.5	02.49	02.42	21.4
64002	3	780816	034215	000.84	027.04	0407.2	01.62	01.55	19.6	000.08	003.34	0357.0	01.90	24.46	000.60	021.17	0382.6	01.55	01.47	21.2
64002	4	781219	037586	000.92	030.25	0433.9	02.67	02.25	18.3	000.13	011.92	0330.7	04.57	25.35	000.62	022.69	0422.0	02.63	02.21	19.2
64003	0	771101	025216	000.84	002.24	0604.4	02.98	02.68	14.5	000.11	000.06	0495.3	03.60	17.89	000.59	008.54	0655.0	02.25	01.99	13.2
64003	1	780330	028804	001.08	004.53	0632.0	03.27	02.95	13.8	000.13	000.56	0554.4	04.30	15.96	000.61	003.11	0604.8	02.70	02.42	14.5
64003	2	780609	030512	000.66	001.30	0597.7	02.92	02.68	14.7	000.13	000.04	0468.8	03.54	18.90	000.44	001.26	0559.1	02.71	02.46	15.7
64003	3	780831	033885	000.93	002.29	0658.7	03.03	03.05	13.3	000.15	000.13	0460.0	03.64	19.25	000.47	001.71	0574.4	02.37	02.31	15.3
64003	4	781206	034928	001.05	002.55	0602.1	03.68	03.38	14.6	000.11	000.01	0462.7	04.87	19.15	000.41	001.12	0565.9	02.12	01.70	15.5
64004	0	771116	007406	002.20	031.70	0473.6	04.51	03.82	16.7	001.24	020.40	0377.6	04.26	21.44	001.99	025.07	0448.4	04.02	03.38	17.9
64004	1	780320	008604	001.88	016.39	0482.7	04.55	03.93	17.2	000.95	013.33	0389.3	03.94	21.46	001.68	008.52	0466.0	04.07	03.51	18.3
64004	2	780607	009835	001.48	009.52	0491.6	03.51	04.03	17.3	000.59	005.49	0399.1	02.92	21.65	001.32	004.82	0463.7	03.18	03.58	18.6
64004	3	780824	011320	001.51	013.49	0437.3	02.77	02.81	19.1	000.71	007.53	0372.3	02.75	22.95	001.42	004.37	0424.2	02.49	02.52	20.3
64004	4	781117	013854	001.43	008.54	0489.3	03.39	03.37	17.5	000.41	003.22	0400.9	02.87	21.78	001.41	004.47	0466.1	02.91	02.63	18.5
64005	0	771115	017084	000.69	001.33	0620.3	03.01	02.56	14.2	000.17	000.05	0433.1	01.98	20.45	000.64	000.32	0525.2	02.54	02.16	16.8
64005	1	780325	020397	000.73	001.18	0588.5	02.49	02.25	15.0	000.13	000.10	0497.4	02.41	17.81	000.77	000.45	0529.2	02.52	02.31	16.6
64005	2	780622	021338	000.71	001.61	0526.5	02.16	02.35	16.7	000.19	000.13	0436.2	01.90	20.29	000.90	000.79	0481.3	01.98	01.80	18.2
64005	3	780918	022920	000.75	002.36	0591.5	02.77	02.43	14.8	000.14	000.13	0492.9	02.50	17.97	000.89	002.21	0560.3	02.41	02.12	15.6
64005	4	781211	024606	000.99	005.24	0598.9	01.75	01.55	14.5	000.07	000.11	0484.5	01.72	18.29	000.82	001.21	0543.8	01.41	01.25	16.1
64006	0	771114	030286	001.11	006.10	0550.7	04.33	04.01	15.7	000.23	000.23	0442.6	03.79	19.99	000.84	001.24	0525.0	04.50	04.16	16.7
64006	1	780404	036061	001.05	005.40	0580.4	04.23	03.95	15.0	000.23	000.23	0465.3	03.69	19.01	000.81	002.03	0545.1	04.36	03.97	16.1
64006	2	780710	042252	001.70	011.01	0605.0	04.78	04.59	14.1	000.28	000.53	0475.8	04.06	18.57	000.99	003.32	0574.8	04.90	04.71	15.2
64006	3	780928	044700	001.29	007.05	0589.8	04.82	04.60	14.7	000.28	000.51	0462.3	04.65	19.11	001.02	003.74	0559.7	04.81	04.58	15.5
64006	4	790103	046696	002.22	016.66	0563.1	05.28	04.18	14.9	000.32	000.57	0431.4	04.62	20.47	001.06	003.72	0532.3	05.29	04.20	16.3
64007	0	771115	026952	001.72	023.91	0645.1	04.05	03.69	12.9	000.64	003.38	0464.7	03.30	18.79	001.35	016.91	0586.5	03.59	03.16	14.3
64007	1	780329	030680	001.70	017.26	0651.2	04.58	04.34	13.0	000.81	002.98	0469.5	04.58	18.60	001.34	010.17	0617.8	04.38	03.84	13.9
64007	2	780613	032667	001.52	014.64	0635.8	04.77	04.42	13.4	000.70	003.00	0421.8	03.95	20.68	001.21	007.94	0607.6	04.68	04.36	14.2
64007	3	780912	033973	001.51	017.09	0686.8	04.82	04.56	12.3	000.72	002.71	0490.4	04.20	17.85	001.35	013.12	0664.6	04.87	04.60	12.8
64007	4	781205	036243	002.04	016.92	0627.1	05.33	04.48	13.4	000.86	002.79	0443.0	05.06	19.70	001.67	013.54	0609.4	05.20	04.39	13.9
64008	0	771123	011539	001.13	003.29	0389.5	03.15	02.76	22.3	000.20	000.15	0256.9	04.43	34.40	000.81	002.22	0375.2	03.36	02.88	23.2
64008	1	780330	013338	000.58	002.31	0398.4	03.50	03.36	22.0	000.23	000.24	0282.3	05.33	31.30	000.37	001.10	0373.9	03.19	02.95	23.5
64008	2	780619	014678	000.74	002.81	0399.3	04.06	03.79	21.8	000.23	000.26	0265.7	05.24	33.23	000.37	001.66	0377.8	03.81	03.57	23.2
64008	3	780914	017035	001.16	002.75	0411.6	04.28	04.19	21.1	000.27	000.14	0275.6	05.24	32.06	000.77	001.88	0394.0	04.05	03.97	22.7
64008	4	781212	019462	003.83	001.81	0458.5	05.31	04.52	18.7	000.54	000.41	0304.2	06.52	28.93	003.81	000.86	0435.0	05.38	04.58	19.7
64009	0	771130	033434	001.74	018.34	0464.8	03.05	02.58	17.8	000.44	005.03	0376.4	03.10	22.99	001.13	010.09	0437.4	02.29	01.93	19.4
64009	1	780404	040339	001.85	025.65	0463.7	02.84	02.52	17.4	000.50	008.87	0382.2	02.81	22.29	002.06	018.78	0438.9	02.18	01.89	18.5
64009	2	780629	044423	002.25	023.58	0429.1	02.54	02.54	18.7	000.56	009.23	0358.2	02.54	23.68	001.60	020.46	0402.6	01.83	01.83	20.1
64009	3	780919	049188	001.82	023.40	0464.7	02.76	02.42	17.5	000.57	008.15	0391.4	03.02	21.84	001.59	018.40	0439.6	02.11	01.86	18.7
64009	4	781212	053343	001.94	022.65	0434.4	02.83	02.37	18.6	000.59	005.59	0357.2	03.22	24.10	002.14	017.76	0410.4	02.39	02.00	19.9
64011	0	771201	015377	000.83	009.07	0765.7	02.07	01.86	11.3	000.55	010.98	0504.3	02.41	16.95	001.51	013.38	0713.7	01.89	01.74	11.9
64011	1	780405	019318	000.99	008.25	0826.5	03.07	02.33	10.5	000.33	003.71	0553.6	04.51	15.82	001.11	008.18	0775.0	03.26	02.97	11.2
64011	2	780713	024509	002.29	039.22	0732.4	02.76	02.74	11.1	001.01	017.00	0507.0	04.12	16.52	003.25	057.46	0645.9	02.50	02.49	11.8
64011	3	780926	025992	003.04	053.68	0743.2	02.39	02.50	10.6	000.91	012.39	0527.1	03.65	16.14	002.68	042.69	0719.5	02.63	02.75	11.1
64011	4	781219	027424	003.29	049.63	0725.8	04.07	03.41	10.9	001.51	021.04	0502.2	05.89	16.42	004.01	056.35	0697.0	03.56	02.98	11.1
64012	0	771202	026675	002.74	010.86	0409.6	02.47	02.28	20.4	000.44	000.55	0266.9	04.63	32.95	001.65	006.41	0376.2	02.62	02.41	22.6
64012	1	780406	030934	000.58	003.15	0448.1	02.04	01.32	19.5	000.38	000.25	0315.9	02.48	28.02	000.38	001.79	0421.9	01.93	01.72	20.8
64012	2	780623	034000	000.62	002.48	0410.1	02.12	01.99	21.3	000.19	000.41	0284.9	03.79	30.99	000.47	001.85	0385.3	02.07	01.97	22.7
64012	3	780919	036762	000.55	004.88	0461.3	01.99	01.77	18.8	000.12	000.32	0322.4	01.53	27.43	000.40	002.80	0430.5	02.22	01.97	20.3
64012	4	781211	039296	001.40	009.83	0457.5	01.64	01.50	18.6	000.15	000.82	0313.0	03.13	28.18	000.93	009.13	0450.2	01.63	01.46	18.9
64013	0	771206	025724	000.66	011.10	0348.2	02.24	01.98	24.1	000.24	005.49	0278.8	02.20	30.77	000.27	003.71	0334.9	02.19	01.88	25.9
64013	1	780407	027961	000.69	010.22	0378.0	02.75	02.49	22.4	000.54	012.10	0304.2	02.65	27.29	000.27	003.41	0350.0	02.42	02.15	24.3
64013	2	780630	029836	000.55	008.02	0349.7	02.38	02.41	24.4	000.37	007.94	0257.0	02.02	32.76	000.32	004.46	0331.9	02.08	02.12	26.0
64013	3	780914	030810	000.92	013.50	0389.8	02.45	02.40	21.4	000.84	016.67	0312.2	02.59	26.00	000.53	008.63	0356.6	02.15	02.12	23.8
64013	4	781219	032185	000.57	007.66	0341.9	02.86	02.34	24.9	000.33	006.01	0285.0	02.87	30.01	000.26	002.82	0320.2	02.45	02.02	27.2
64014	0	771208	032038	000.62	002.79	0428.1	01.98	01.65	20.4	000.21	000.19	0305.7	02.79	28.92	000.61	000.92	0397.6	02.10	01.73	22.1
64014	1	780406	039889	037.53	199.47	0468.6	00.69	00.52	09.8	032.13	036.53	0408.4	01.30	18.77	035.99	124.45	0479.7	00.58	00.52	08.8
64015	0	771208	031103	000.74	010.50	0614.1	02.47	02.36	14.0	000.13	000.44	0491.2	04.33	18.01	000.39	002.77	0607.3	02.81	02.34	14.4
64015	1	780411	037131	000.44	002.69	0645.5	02.63	02.34	13.5	000.37	000.04	0492.4	01.47	18.00	000.28	001.09	0612.4	02.43	02.19	14.4
64015	2	780628	040526	001.01	016.04	0581.2	01.96	01.88	14.5	000.15	003.33	0467.0	02.59	18.76	000.69	013.63	0555.7	01.60	01.56	15.3
64015	3	780914	042049	001.01	017.63	0657.2	02.49	02.40	12.9	000.12	001.36	0492.6	02.98	17.91	000.50	007.94	0624.2	02.26	02.18	13.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
64016	0	771209	026245	000.72	006.69	0355.5	02.09	01.74	24.1	000.08	001.69	0242.7	02.61	36.11	000.71	004.74	0314.2	01.67	01.44	27.3
64016	1	780411	029844	000.99	007.43	0331.1	03.86	03.45	25.6	000.19	002.83	0258.4	05.37	33.66	000.89	005.26	0320.4	04.42	03.96	26.7
64017	0	771215	015502	001.04	007.23	0322.3	02.40	02.21	25.3	000.84	001.93	0235.7	04.70	36.74	000.92	004.64	0314.2	02.21	02.02	27.3
64017	1	780414	018463	001.04	008.86	0370.1	02.55	02.30	22.9	000.78	002.09	0239.3	04.47	36.18	000.93	005.54	0349.8	02.31	02.15	24.5
64017	2	780711	020819	001.29	006.44	0357.3	02.26	02.10	23.9	000.83	001.85	0225.8	04.07	38.33	000.99	004.52	0348.2	02.03	01.89	24.7
64017	3	780926	023326	008.69	006.60	0339.8	03.00	03.06	23.5	001.47	001.55	0227.5	05.03	37.80	008.96	005.14	0318.1	02.90	02.90	25.0
64017	4	781228	025487	001.29	005.70	0278.9	03.22	02.55	30.4	000.72	001.65	0200.8	05.00	43.13	001.37	003.47	0265.9	02.95	02.35	32.1
64018	0	771215	025538	001.53	026.16	0323.1	03.53	03.08	24.0	000.39	009.68	0249.5	03.97	33.35	001.04	018.85	0313.0	02.99	02.54	25.6
64018	1	780417	031900	001.44	022.89	0338.3	03.64	03.47	23.4	000.93	020.52	0266.7	04.87	29.38	001.16	017.94	0321.9	03.49	03.33	25.3
64018	2	780705	037569	001.67	023.94	0330.3	03.68	03.46	23.8	001.21	023.97	0267.8	04.90	28.68	001.79	032.21	0362.0	04.37	04.29	21.2
64018	3	780915	041080	001.40	021.37	0357.8	04.80	04.31	22.4	000.82	016.07	0282.3	05.54	28.59	000.87	013.88	0343.4	04.29	03.86	24.0
64018	4	781211	044594	001.71	025.52	0341.9	04.10	03.63	22.9	001.35	022.38	0251.9	04.74	30.53	001.08	015.45	0321.8	03.92	03.45	25.3
64019	0	771217	025635	001.16	016.39	0507.5	02.10	01.80	16.5	000.17	002.16	0431.8	01.61	20.35	001.17	007.01	0487.9	02.39	02.03	17.6
64019	1	780413	028949	001.09	014.98	0510.1	01.75	01.52	15.5	000.21	002.01	0451.1	01.69	19.49	001.30	009.74	0472.4	01.66	01.37	18.3
64019	2	780710	031058	001.06	017.66	0485.9	01.49	01.37	17.2	000.21	001.88	0416.8	01.57	21.09	001.65	016.96	0433.3	01.32	01.24	19.0
64019	3	780921	034002	001.28	019.07	0512.8	01.64	01.45	15.2	000.17	001.87	0490.2	01.62	17.96	001.15	009.81	0483.9	01.43	01.27	17.6
64019	4	781216	036857	001.43	020.76	0497.4	02.11	01.82	16.6	000.21	002.46	0429.9	02.12	20.41	001.18	014.49	0478.3	01.93	01.67	17.5
64020	0	771220	020083	001.29	007.33	0423.0	03.74	03.02	20.2	000.35	000.73	0263.8	04.19	33.33	000.97	002.56	0404.6	03.38	02.73	21.5
64020	1	780425	024077	001.75	014.56	0345.9	02.51	02.28	23.7	000.44	002.31	0245.8	03.49	35.36	001.20	011.07	0327.1	02.30	02.27	25.4
64020	2	780718	026703	002.00	011.32	0413.2	03.45	03.31	20.3	000.59	001.39	0284.2	04.82	30.76	001.69	012.80	0393.2	03.79	03.61	21.1
64020	3	780929	028204	002.10	009.38	0445.1	03.43	03.26	19.0	000.67	003.55	0379.1	06.45	22.93	001.57	007.59	0432.3	03.45	03.26	19.7
64020	4	781227	030253	001.79	010.67	0476.3	04.61	03.87	17.8	000.46	001.50	0298.1	06.06	29.37	001.87	019.69	0465.1	04.19	03.53	17.6
64021	0	780315	007751	001.66	012.64	0343.0	02.32	01.90	24.1	000.60	005.63	0239.2	04.52	35.48	001.97	011.09	0324.1	02.24	01.83	25.4
64021	1	780605	008991	001.84	016.02	0330.7	02.15	02.37	24.5	000.58	007.34	0226.9	04.02	36.90	001.98	017.63	0306.4	01.97	02.09	26.3
64021	2	780825	009848	002.33	030.74	0328.8	01.40	01.33	23.1	000.55	009.16	0230.4	03.66	35.97	002.03	018.06	0317.8	01.82	01.70	25.1
64021	3	781120	010957	001.61	016.25	0321.0	02.03	01.55	25.2	000.62	005.93	0215.6	04.13	39.09	001.62	013.17	0310.7	02.19	01.77	26.3
64021	4	790212	012160	001.36	021.48	0323.3	01.86	01.57	24.5	000.64	010.89	0238.2	03.98	34.47	001.60	022.05	0308.5	01.69	01.51	25.4
64022	0	771222	019656	001.06	005.51	0575.6	05.31	04.36	15.1	000.38	001.33	0470.4	06.80	18.72	000.79	001.39	0542.6	05.42	04.47	16.2
64022	1	780425	022426	001.51	005.69	0570.9	05.03	05.45	15.2	000.52	001.13	0468.4	07.34	18.80	001.16	001.69	0529.7	05.53	05.16	16.5
64022	2	780725	024653	001.05	006.53	0538.6	04.21	04.34	16.1	000.45	001.00	0408.9	05.60	21.53	000.94	002.14	0524.2	04.24	04.41	16.7
64022	3	781018	026737	001.36	008.14	0578.8	05.46	04.76	14.9	000.56	001.10	0467.3	07.24	18.84	001.11	002.23	0547.1	05.60	04.93	16.0
64022	4	790119	028363	002.59	009.11	0558.7	05.66	04.83	15.3	000.79	001.08	0433.9	07.47	20.24	001.62	002.75	0529.7	05.49	04.71	16.4
64023	0	771227	026243	000.61	005.42	0470.3	02.48	02.07	18.4	000.06	000.22	0394.1	02.10	22.47	000.39	000.70	0444.8	02.21	01.83	19.8
64023	1	780418	029343	000.61	003.73	0552.2	02.49	02.43	15.3	000.06	000.08	0463.5	02.04	19.12	000.55	000.75	0568.4	02.37	02.52	15.5
64023	2	780712	034126	000.42	002.34	0481.1	02.50	02.34	18.2	000.07	000.12	0378.2	01.89	23.42	000.25	000.27	0448.6	02.32	02.17	19.7
64023	3	780922	036782	000.49	003.10	0446.5	02.15	02.02	19.6	000.07	000.01	0394.2	02.63	22.48	000.45	000.64	0417.3	01.86	01.73	21.1
64023	4	781213	040076	000.95	003.70	0483.6	02.31	01.90	18.0	000.08	000.52	0377.8	02.33	23.41	000.39	000.72	0442.6	02.25	01.85	19.9
64024	0	771230	030892	000.94	004.68	0727.4	01.94	01.63	12.0	000.21	000.49	0528.9	02.41	16.72	001.12	005.46	0676.9	02.15	01.81	12.8
64024	1	780420	033039	000.95	005.76	0754.9	02.28	02.17	11.6	000.31	000.87	0562.5	03.19	15.70	001.21	004.06	0702.1	02.36	02.71	12.4
64024	2	780713	036059	001.79	008.41	0717.0	02.03	02.05	12.1	000.42	001.32	0532.1	02.31	16.56	001.20	004.52	0655.7	02.23	02.32	13.3
64024	3	780926	040278	001.10	006.33	0734.0	01.91	01.91	11.9	000.37	001.05	0539.2	02.24	16.36	001.31	004.69	0678.1	02.20	02.17	12.8
64024	4	781228	043619	002.53	012.11	0726.9	02.27	01.84	11.8	000.46	001.03	0517.7	02.76	17.03	001.66	005.08	0671.8	02.66	02.16	12.9
64025	0	780331	011636	001.13	009.00	0614.7	03.21	02.78	14.0	000.11	000.02	0464.5	03.95	19.08	000.35	000.29	0650.4	03.43	03.01	13.6
64025	1	780614	012824	000.78	006.54	0579.8	02.88	02.54	15.0	000.12	000.02	0429.3	03.67	20.64	000.44	001.30	0551.6	02.31	02.43	15.9
64025	2	780912	014422	001.19	007.77	0603.2	03.06	02.93	14.3	000.16	000.03	0461.7	04.03	19.18	000.47	000.43	0559.5	03.03	02.90	15.7
64025	3	781211	015969	001.37	009.56	0556.1	02.93	02.53	15.4	000.13	000.02	0425.8	03.92	20.81	000.40	001.62	0518.6	02.76	02.37	16.9
64025	4	790228	016850	000.80	008.74	0546.2	02.79	02.40	15.8	000.12	000.02	0424.7	03.76	20.86	000.56	002.18	0518.0	02.73	02.34	16.9
64026	0	780106	023119	001.41	012.86	0350.0	02.23	01.94	23.7	000.45	006.13	0246.5	03.25	34.44	001.24	010.63	0337.9	02.11	01.84	24.7
64026	1	780420	026359	002.04	014.01	0360.7	02.65	02.30	22.9	000.84	004.93	0257.1	04.10	33.15	002.21	011.54	0335.7	02.35	02.06	24.5
64026	2	780718	028279	001.84	011.80	0336.8	01.96	01.86	24.6	000.74	004.17	0243.6	03.32	35.13	001.90	009.15	0323.7	01.92	01.83	25.7
64026	3	780925	029695	001.93	013.23	0356.1	02.18	02.14	23.2	000.59	005.58	0249.4	03.48	34.11	001.87	010.95	0345.5	02.04	02.03	24.0
64026	4	781215	031442	001.66	013.00	0377.8	02.88	02.47	22.0	000.76	003.73	0266.4	04.78	32.29	001.70	009.21	0361.0	02.82	02.40	23.2
64027	0	780106	023609	001.49	004.83	0508.5	03.56	03.06	17.0	000.59	002.45	0345.0	03.85	25.29	002.05	003.89	0479.8	03.39	02.92	18.0
64027	1	780502	028934	001.45	005.17	0510.1	03.64	03.23	17.0	000.50	002.43	0344.7	03.74	25.33	001.52	003.63	0479.6	03.59	03.04	18.0
64027	2	780725	032936	001.46	005.41	0497.9	02.80	03.42	17.4	000.52	002.42	0317.7	02.64	27.44	001.75	003.77	0488.6	02.71	03.33	17.7
64027	3	781010	037708	001.42	004.49	0486.9	03.27	03.13	17.8	000.47	002.28	0331.3	03.24	26.37	001.65	003.34	0460.1	03.07	02.93	18.8
64027	4	790125	043033	000.69	005.00	0519.1	03.60	03.02	16.8	000.34	002.60	0334.5	03.42	26.11	000.71	004.15	0495.1	03.39	02.80	17.6
64028	0	780412	030994	001.63	007.50	0307.1	02.89	02.50	27.4	000.77	001.84	0222.9	04.73	38.85	001.21	005.22	0308.8	02.73	02.38	27.6
64028	1	780710	034229	001.70	005.94	0303.7	02.70	02.55	27.3	000.74	001.42	0213.1	04.48	40.75	001.80	004.36	0306.0	02.71	02.47	27.9
64028	2	780919	037921	001.73	008.04	0327.9	03.17	02.88	25.6	000.80	001.73	0231.2	05.16	37.50	001.69	005.01	0307.5	02.89	02.62	27.6
64028	3	781214	043327	001.90	008.45	0316.1	03.26	02.75	25.4	000.92	002.01	0226.0	04.99	38.21	002.03	005.90	0309.1	02.98	02.53	27.3
64028	4	790301	048053	001.73	008.50	0298.6	02.71	02.28	27.9	000.86	001.76	0218.0	04.73	39.69	001.78	004.30	0284.6	02.46	02.06	29.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PURTLAND PASS

				FTP						HFET					HS FTP					
EPA NU	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
64029	0	780107	030329	001.21	011.87	0410.6	02.05	01.83	20.2	000.19	003.25	0300.3	01.45	28.98	000.66	002.48	0391.6	02.16	01.95	22.3
64029	1	780420	034391	000.95	012.14	0410.4	01.86	01.59	20.5	000.14	000.76	0273.9	02.27	32.19	000.30	002.76	0405.9	01.39	01.25	21.5
64029	2	780717	038489	001.55	013.58	0391.1	01.59	01.49	21.2	000.71	027.65	0268.3	00.50	28.24	005.45	072.93	0381.4	00.28	00.26	17.2
64029	3	780925	040105	000.72	010.21	0424.5	01.11	01.13	20.0	000.50	026.18	0301.8	00.32	25.74	002.10	035.24	0461.1	00.21	00.22	16.9
64029	4	781227	041631	002.50	036.52	0323.6	01.56	01.28	22.8	001.41	019.64	0200.6	01.84	37.58	001.51	019.62	0308.3	01.57	01.39	25.7
64030	0	780107	032969	001.84	013.07	0348.0	02.61	02.30	23.7	000.77	003.77	0257.6	03.67	33.34	001.80	009.81	0332.0	02.35	02.07	25.1
64031	0	780112	014954	000.84	002.14	0428.6	01.70	01.43	20.4	000.34	000.54	0308.0	02.47	28.61	000.62	001.16	0400.5	01.69	01.43	21.9
64031	1	780420	015914	000.70	002.77	0452.5	02.31	02.33	19.3	000.41	000.66	0333.4	03.26	26.42	000.57	001.60	0415.5	02.11	01.83	21.1
64031	2	780712	017879	000.78	002.37	0413.8	01.72	01.71	21.1	000.37	000.49	0303.5	02.19	29.03	000.57	001.09	0384.2	01.63	01.62	22.8
64031	3	780927	018939	000.80	003.53	0425.4	01.84	01.70	20.5	000.37	000.51	0318.8	02.49	27.64	000.56	001.55	0403.9	01.65	01.55	21.7
64031	4	781219	019796	001.55	002.99	0454.2	01.75	01.45	19.1	000.77	000.86	0349.7	02.65	25.09	001.78	001.65	0429.6	01.71	01.43	20.2
64032	0	780109	014740	001.58	013.55	0357.0	03.02	02.68	23.1	000.86	004.76	0262.5	04.90	32.52	001.47	010.61	0337.2	02.74	02.43	24.7
64032	1	780425	017597	001.57	014.62	0358.0	03.08	02.35	23.0	000.79	004.45	0255.2	04.91	33.50	001.44	010.67	0337.7	02.73	02.52	24.7
64032	2	780719	019323	001.30	014.03	0349.2	02.41	02.55	23.6	000.68	004.48	0247.1	03.92	34.60	001.26	011.22	0340.3	02.28	02.65	24.9
64032	3	781004	020598	001.67	012.95	0361.9	02.83	02.70	22.9	000.72	004.41	0257.8	04.56	33.22	001.49	011.50	0338.7	02.46	02.29	24.5
64032	4	790108	022465	001.07	012.38	0359.0	02.50	01.97	23.2	000.49	004.37	0239.0	04.03	35.84	001.01	010.71	0348.9	02.38	01.87	24.0
64033	0	780120	032017	001.06	011.21	0406.6	02.49	02.22	20.7	000.55	004.15	0277.3	03.78	31.05	000.90	009.48	0393.0	02.26	02.02	21.5
64034	0	780112	007588	001.19	007.81	0328.8	03.38	02.95	25.7	000.80	002.31	0241.6	05.65	35.80	001.17	006.31	0314.1	03.11	02.70	27.0
64034	1	780421	009542	001.36	009.69	0338.3	03.68	03.33	24.8	000.94	002.63	0248.8	06.01	34.65	001.30	006.78	0318.9	03.43	03.38	26.5
64034	2	780724	012523	001.62	011.67	0315.5	02.84	03.31	25.9	000.99	002.85	0229.1	04.86	37.46	001.47	008.95	0310.6	02.68	03.03	26.9
64034	3	781012	013986	001.05	006.79	0320.5	03.29	02.90	25.5	000.90	002.14	0233.5	05.65	36.99	001.31	005.95	0310.5	03.13	02.73	27.3
64034	4	790130	016399	001.33	010.12	0311.1	03.10	02.46	26.8	000.80	002.17	0209.7	04.90	41.12	001.25	007.47	0294.5	02.64	02.09	28.5
64035	0	780111	019210	000.38	003.45	0393.5	02.40	02.11	22.2	000.09	000.39	0274.8	02.58	32.17	000.24	001.04	0368.9	02.00	01.78	23.8
64035	1	780425	021863	000.39	003.16	0417.5	01.79	01.75	20.9	000.09	000.39	0283.7	02.18	31.16	000.30	002.14	0403.9	01.53	01.55	21.7
64035	2	780720	024490	000.38	002.72	0395.3	02.14	02.10	22.1	000.12	000.31	0277.8	02.69	31.82	000.27	001.17	0382.8	01.94	01.88	23.0
64035	3	781004	027332	000.44	003.43	0400.1	02.01	01.91	21.8	000.12	000.46	0285.3	02.11	30.96	000.39	001.43	0374.6	02.20	02.12	23.4
64035	4	790118	029864	000.35	003.23	0387.8	01.80	01.69	22.5	000.12	000.53	0275.8	02.40	32.02	000.35	001.54	0360.7	02.12	01.75	24.3
64036	0	780110	015373	001.60	012.56	0664.9	02.60	02.31	12.9	000.22	000.73	0553.1	02.94	15.98	000.82	003.39	0626.0	02.95	02.62	13.9
64036	1	780420	017043	000.91	006.23	0690.5	02.69	02.39	12.5	000.21	000.54	0557.8	02.73	15.86	000.57	003.50	0641.7	03.20	02.86	13.5
64036	2	780726	018903	001.91	017.06	0634.9	01.78	01.90	13.3	000.29	001.16	0497.9	02.08	17.71	001.07	008.43	0613.0	02.15	02.14	14.0
64036	3	781016	020614	001.57	012.92	0683.1	02.19	02.32	12.5	000.33	001.14	0561.0	02.56	15.73	000.94	005.79	0637.3	02.62	02.42	13.6
64036	4	790119	022897	002.26	018.09	0647.8	02.55	02.18	13.0	000.43	001.44	0539.9	02.81	16.32	001.22	004.87	0615.7	02.99	02.56	14.1
64037	0	780110	015048	000.92	011.83	0534.0	02.85	02.49	16.0	000.25	004.57	0346.5	02.82	25.02	000.57	009.01	0510.3	02.59	02.33	16.8
64037	1	780503	017289	000.61	008.25	0532.1	03.30	02.76	15.2	000.29	003.61	0353.5	03.84	24.63	000.51	006.09	0513.5	03.32	02.73	16.9
64037	2	780725	020192	000.64	009.04	0520.8	02.43	02.81	16.5	000.23	003.68	0344.4	02.50	25.27	000.56	007.41	0499.6	02.24	02.55	17.2
64037	3	781017	023590	000.75	010.27	0538.5	02.94	02.76	15.9	000.26	003.73	0354.8	03.17	24.53	000.60	007.82	0500.9	02.87	02.71	17.2
64037	4	790123	025902	000.71	008.86	0499.1	02.90	02.44	17.2	000.25	003.36	0330.5	03.08	26.35	000.53	006.17	0491.4	02.85	02.40	17.6
64038	0	780113	015740	001.56	013.60	0666.5	04.71	04.00	12.8	000.88	002.44	0479.4	05.03	18.25	001.42	009.23	0637.4	04.92	04.16	13.5
64038	1	780428	018136	001.52	015.45	0659.2	05.08	04.45	12.9	000.92	002.53	0489.2	05.86	17.80	001.50	009.37	0621.0	05.22	04.53	13.3
64038	2	780726	020567	001.73	017.35	0631.2	03.64	03.86	13.4	000.99	003.48	0472.1	04.61	18.45	001.60	017.44	0626.0	03.77	04.23	13.4
64038	3	781017	022811	001.44	013.51	0659.8	05.04	04.67	12.9	000.87	002.42	0496.8	05.25	17.62	001.35	011.14	0625.8	04.78	04.52	13.6
64038	4	790123	025275	001.58	014.70	0611.9	04.43	03.71	13.9	000.95	002.52	0466.5	05.87	18.73	001.46	009.80	0586.7	04.85	04.02	14.6
64039	0	780113	025768	001.88	007.88	0372.9	02.31	01.99	22.7	000.78	002.87	0266.3	03.60	32.45	001.84	006.48	0358.4	02.13	01.85	23.6
64039	1	780427	029224	001.73	008.16	0378.1	02.19	01.99	22.4	000.69	003.07	0271.6	03.22	31.83	001.68	006.70	0374.1	01.98	01.87	22.7
64039	2	780724	032063	001.40	008.32	0367.5	01.73	01.93	23.0	000.66	003.16	0249.8	02.69	34.52	001.71	007.67	0351.0	01.49	01.67	24.0
64039	3	781010	034265	001.85	007.59	0363.1	02.24	02.39	23.3	000.78	002.88	0261.7	03.80	33.01	001.87	005.68	0355.5	02.13	01.98	23.9
64039	4	790122	036291	001.65	007.98	0363.0	02.33	01.95	23.3	000.74	003.19	0240.9	03.47	35.73	001.77	006.42	0342.6	01.99	01.67	24.7
64040	0	780119	030055	001.00	012.17	0399.6	01.61	01.44	21.0	000.13	000.27	0282.5	02.08	31.30	000.44	001.00	0374.9	01.83	01.65	23.4
64040	1	780526	033493	001.36	014.80	0375.0	01.19	01.39	22.0	000.17	007.07	0285.3	00.66	29.86	001.85	021.33	0369.4	01.11	01.36	21.6
64041	0	780116	024722	001.50	012.03	0372.4	02.66	02.36	22.4	000.73	004.60	0264.2	04.05	32.40	001.34	010.41	0351.4	02.29	02.03	23.8
64041	1	780502	028702	001.98	008.47	0386.5	02.72	02.43	21.8	000.73	003.04	0273.0	04.07	31.66	002.12	006.31	0373.2	02.59	02.33	22.7
64041	2	780724	032416	001.76	008.83	0379.7	02.57	02.97	22.2	000.73	002.88	0247.9	03.65	34.81	001.74	007.43	0373.4	02.56	02.87	22.7
64041	3	781002	036793	001.68	010.16	0388.7	03.58	03.21	21.6	000.94	003.06	0273.4	05.34	31.53	001.87	007.78	0362.2	03.03	02.71	23.3
64041	4	781226	039363	001.28	009.05	0384.1	02.90	02.45	22.0	000.62	002.54	0250.0	04.22	34.65	001.21	006.72	0373.5	02.59	02.27	22.8
64042	0	780120	015967	001.16	009.17	0334.7	02.41	02.20	25.1	000.82	002.51	0241.4	04.80	35.77	001.18	007.09	0315.3	02.21	02.01	26.8
64042	1	780501	020802	001.07	009.01	0332.6	02.97	02.56	25.3	000.68	002.06	0238.9	05.28	36.29	001.04	006.60	0320.9	02.77	02.49	26.5
64042	2	780726	024053	000.96	010.11	0325.5	02.14	02.26	25.7	000.66	003.87	0227.1	04.20	37.69	000.90	008.24	0315.9	02.15	02.28	26.7
64042	3	781016	027269	007.65	007.13	0336.7	02.98	02.76	23.8	001.33	002.21	0242.9	04.75	35.39	007.37	005.33	0321.2	02.79	02.59	25.1
64042	4	790129	030262	000.99	010.09	0316.7	02.85	02.28	25.4	000.66	003.14	0220.3	05.14	39.02	000.89	007.49	0293.4	02.57	02.08	28.7
64043	0	780221	026496	000.57	003.19	0722.3	01.44	01.39	12.2	000.09	002.55	0569.7	01.51	15.45	000.78	008.12	0681.8	00.96	00.94	12.7
64043	1	780511	031480	000.58	004.09	0713.1	01.78	01.49	12.3	000.06	000.83	0551.3	01.87	16.04	000.53	005.59	0652.9	01.16	01.14	13.3
64043	2	780808	034461	000.70	005.00	0628.8	02.52	02.59	13.9	000.11	000.33	0469.4	01.04	18.86	000.45	003.10	0589.5	02.51	02.57	14.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA VJ	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
64045	0	780412	022099	001.66	007.41	0552.2	02.04	01.85	15.6	000.44	000.43	0445.6	02.09	19.81	001.23	000.47	0515.9	02.03	01.86	17.0
64045	1	780626	024647	001.63	003.90	0568.3	01.91	01.85	15.3	000.46	000.52	0449.9	02.17	19.61	001.17	000.73	0538.4	01.82	01.77	16.3
64045	2	780920	026553	001.65	007.73	0592.2	01.87	01.74	14.5	000.45	000.38	0475.3	02.54	18.58	001.16	001.27	0554.0	02.10	01.99	15.8
64045	3	781215	028151	002.10	008.59	0554.9	02.00	01.55	15.4	000.52	000.40	0434.8	02.41	20.29	001.21	001.06	0504.6	02.02	01.67	17.3
64045	4	790301	029340	001.52	006.86	0542.6	01.87	01.56	15.9	000.50	000.48	0433.1	02.32	20.37	001.63	013.28	0474.0	06.07	05.06	17.7
64047	0	780414	024008	001.46	008.51	0589.7	03.99	03.71	14.6	000.47	001.54	0475.0	05.42	18.52	001.00	004.17	0582.7	02.45	02.29	14.9
64047	1	780712	025756	001.62	012.48	0580.4	03.58	03.50	14.7	000.61	003.23	0459.9	05.20	18.99	001.15	008.52	0573.4	02.74	02.86	15.0
64047	2	781004	028169	001.69	013.06	0577.6	04.60	04.29	14.7	000.49	001.56	0461.3	06.63	19.06	001.39	006.40	0570.8	04.06	03.78	15.1
64047	3	781228	031079	001.36	011.08	0578.2	04.60	03.52	14.8	000.43	001.01	0449.3	06.22	19.61	001.24	006.33	0548.2	04.08	03.21	15.7
64047	4	790328	033072	001.50	014.62	0596.0	03.55	03.01	14.2	000.44	000.87	0473.5	05.27	18.62	001.58	012.30	0571.5	03.56	03.01	14.8
64048	0	780417	026502	003.13	065.26	0583.6	01.64	01.56	12.7	002.20	056.56	0431.2	02.07	16.82	001.89	029.55	0546.3	01.39	01.31	14.8
64048	1	780705	028281	002.95	073.26	0585.8	01.38	01.42	12.5	001.76	060.40	0420.2	01.70	17.01	001.93	053.48	0545.0	01.37	01.39	13.9
64048	2	780915	030473	002.12	062.79	0555.2	01.28	01.10	13.4	001.87	075.85	0392.8	01.45	17.12	001.60	049.34	0554.8	01.33	01.16	13.9
64048	3	781212	032215	002.10	051.05	0581.3	01.32	01.10	13.3	001.75	054.43	0429.1	01.84	17.05	001.38	036.52	0564.2	01.18	00.99	14.1
64048	4	790226	034307	002.21	036.84	0626.3	01.85	01.59	12.8	001.66	036.10	0462.0	02.52	16.92	001.16	024.46	0604.3	01.86	01.62	13.7
64049	0	780424	019551	000.95	012.84	0465.2	02.96	02.64	18.2	000.61	004.38	0308.1	04.99	27.99	000.59	009.21	0464.6	03.14	02.82	18.4
64049	1	780718	022245	000.82	011.81	0461.2	02.65	02.33	18.4	000.51	004.32	0291.0	04.44	29.62	000.65	008.24	0447.5	02.55	02.65	19.1
64049	2	780929	024005	000.94	012.02	0490.7	03.09	02.92	17.3	000.60	004.77	0311.8	05.50	27.61	000.80	009.11	0456.8	02.78	02.61	18.7
64049	3	781219	025523	000.79	010.82	0447.7	02.96	02.42	19.0	000.57	003.79	0289.2	05.06	29.86	000.67	007.74	0426.1	02.65	02.17	20.1
64049	4	790306	026135	000.83	012.16	0443.5	02.51	02.41	19.1	000.56	004.86	0290.8	04.61	29.54	000.67	009.09	0418.9	02.23	02.15	20.3
64050	0	780426	011712	000.99	009.10	0524.2	02.82	02.63	16.4	000.49	002.96	0388.6	02.78	22.46	000.92	004.49	0494.9	02.63	02.45	17.5
64050	1	780721	013852	000.98	009.12	0502.5	02.76	02.55	17.1	000.48	002.47	0355.0	02.72	24.61	000.82	005.92	0500.7	02.33	02.24	17.3
64050	2	781017	015469	001.04	007.01	0515.4	03.29	03.07	16.7	000.54	002.88	0387.4	02.87	22.53	000.91	005.78	0490.4	02.80	02.60	17.6
64050	3	781228	016435	001.09	006.09	0472.4	03.16	02.50	18.3	000.56	001.96	0348.8	03.36	25.08	000.97	002.89	0445.8	03.34	02.68	19.5
64050	4	790314	017276	001.28	007.53	0514.0	03.06	02.72	16.7	000.61	002.93	0367.6	02.76	23.70	001.18	005.09	0486.4	02.82	02.53	17.8
64051	0	780426	012578	000.76	003.09	0384.6	03.65	03.50	22.6	000.23	000.32	0281.4	05.47	31.38	000.50	001.97	0364.6	03.51	03.37	24.0
64051	1	780721	014625	000.77	004.43	0397.2	01.45	01.57	21.8	000.15	000.34	0259.5	01.77	34.04	000.56	002.95	0359.5	01.44	01.73	24.2
64051	2	781025	018903	000.95	004.32	0419.0	02.11	01.75	20.7	000.19	000.36	0295.0	02.81	29.94	000.60	002.64	0391.8	02.22	01.83	22.2
64051	3	790119	021551	000.76	004.00	0403.9	02.06	01.76	21.5	000.23	000.39	0280.7	02.95	31.44	000.57	002.28	0373.0	02.19	01.88	23.4
64051	4	790330	023592	000.75	003.80	0400.2	02.00	01.72	21.7	000.21	000.50	0295.8	01.89	29.84	000.59	002.06	0377.7	01.88	01.63	23.1
64052	0	780426	036355	000.97	005.38	0743.2	02.79	02.68	11.7	000.17	000.37	0575.1	02.85	15.39	000.99	011.12	0682.8	02.66	02.55	12.6
64052	1	780807	040306	001.77	011.29	0710.2	02.31	02.50	12.1	000.26	001.39	0546.6	00.95	16.14	000.73	004.44	0688.7	02.33	02.73	12.7
64052	2	781027	043431	001.60	012.60	0726.9	03.18	02.80	11.8	000.17	000.41	0555.8	03.34	15.92	001.19	009.13	0681.6	03.23	02.87	12.6
64052	3	790103	045275	001.32	010.89	0782.3	04.43	03.54	11.0	000.17	000.35	0575.4	04.59	15.38	001.01	008.67	0724.9	04.51	03.68	11.9
64052	4	790330	047154	002.48	026.85	0731.2	02.81	02.38	11.4	000.24	001.20	0591.8	03.13	14.92	001.93	015.46	0728.1	03.60	03.06	11.6
64053	0	780724	028670	002.36	007.36	0409.2	01.73	01.96	20.7	000.65	003.54	0249.0	02.35	34.55	002.46	006.69	0408.7	01.57	01.87	20.7
64053	1	781016	030901	002.21	007.38	0385.0	01.86	01.74	22.0	000.71	003.40	0246.2	02.56	34.95	002.38	005.93	0368.7	01.70	01.59	23.0
64053	2	790103	032871	002.09	006.90	0393.3	02.01	01.56	21.6	000.53	003.57	0309.2	04.32	28.02	002.13	005.47	0387.3	02.15	01.69	22.0
64053	3	790319	034936	001.75	007.02	0387.7	01.80	01.54	21.9	000.63	003.20	0244.8	02.63	35.22	002.23	005.84	0368.7	01.71	01.46	23.0
64053	4	790813	038006	002.15	007.02	0383.9	01.82	01.69	22.1	000.70	003.36	0250.5	02.73	34.37						
64054	0	781103	010684	000.67	002.15	0622.3	02.13	01.95	14.1	000.10	000.18	0456.6	02.76	19.40	000.31	000.75	0584.0	02.09	01.91	15.1
64054	1	790122	011326	000.72	004.20	0625.6	02.64	02.19	14.0	000.09	000.04	0441.2	03.33	20.09	000.45	002.05	0585.1	02.80	02.31	15.0
64054	2	790402	012026	000.59	001.80	0594.7	02.42	02.27	14.8	000.09	000.24	0441.3	03.46	20.06	000.29	000.27	0568.5	02.39	02.06	15.5
64054	3	790806	013129	000.60	001.74	0600.1	02.14	02.02	14.7	000.08	000.03	0441.0	02.62	20.10						
64054	4	791106	014550	000.54	001.83	0625.9	02.30	02.00	14.1	000.08	000.08	0469.1	02.94	18.89						
64055	0	781129	064441	000.78	008.48	0595.2	01.90	01.75	14.5	000.30	004.58	0449.8	02.44	19.36	001.05	012.93	0561.5	01.61	01.49	15.1
64055	1	790215	065102	000.77	007.59	0598.7	02.52	02.16	14.5	000.37	005.88	0474.9	03.94	18.27	000.71	010.08	0588.7	02.52	02.15	14.6
64055	2	790803	069236	002.78	055.69	0563.5	01.96	01.75	13.4	000.51	008.21	0455.5	03.25	18.87						
64055	3	791008	069925	003.23	060.69	0604.6	02.05	01.97	12.5	000.45	007.55	0476.8	03.10	18.10						
64055	4	791203	070315	001.87	023.19	0623.5	02.23	02.04	13.3	000.23	002.42	0465.6	03.00	18.86						
64056	0	781201	035503	001.85	004.81	0374.4	03.82	03.33	22.9	000.58	000.63	0259.3	05.30	33.83	001.34	002.88	0343.5	03.76	03.27	25.1
64056	1	790216	037457	001.36	004.05	0397.3	03.87	03.33	21.7	000.49	000.64	0265.2	06.25	33.12	001.27	002.91	0363.4	04.14	03.55	23.3
64056	2	790824	041795	001.51	006.37	0401.9	02.10	02.26	21.3	000.41	000.70	0274.1	04.28	32.08						
64056	3	791019	042842	001.96	009.10	0422.0	02.04	01.82	20.0	000.38	001.16	0266.0	02.92	32.97						
64056	4	791217	043819	001.74	008.84	0420.0	02.45	02.15	20.2	000.35	001.29	0260.9	03.40	33.59						
64057	0	781213	025528	001.58	008.08	0338.3	02.80	02.30	24.9	000.98	003.30	0227.2	03.05	37.65	001.43	005.53	0327.0	02.87	02.36	26.0
64057	1	790227	027486	002.30	008.73	0336.8	04.15	03.52	24.8	001.63	008.09	0229.5	04.51	35.84	002.28	005.33	0346.7	04.41	03.82	24.5
64057	2	790806	031618	002.43	007.75	0324.8	04.10	03.93	25.7	001.70	004.79	0228.5	04.92	36.74						
64057	3	791015	034285	002.53	009.43	0337.3	03.94	03.89	24.6	001.43	003.37	0241.2	05.28	35.33						
64057	4	800107	036191	002.30	016.69	0350.2	05.28	04.29	23.1	001.34	004.52	0241.7	05.78	35.05						
64058	0	781214	071131	001.10	008.62	0732.5	02.83	02.39	11.8	000.09	000.23	0524.9	04.57	16.87	000.80	005.50	0689.7	02.90	02.46	12.6
64058	1	790302	075212	000.55	003.68	0689.5	03.59	03.33	12.7	000.10	000.13	0498.4	05.08	17.77	000.56	004.17	0648.6	03.27	02.77	13.5

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CU	CO2	NOX	MPG	HC	CU	CO2	NOX	NOXC	MPG
64059	0	781214	035484	000.96	004.82	0403.4	01.13	01.00	21.4	000.05	000.87	0250.4	01.62	35.20	001.05	003.47	0370.8	01.24	01.11	23.3
64059	1	790305	038180	001.29	005.87	0293.4	01.66	01.58	28.9	000.19	002.24	0231.6	03.10	37.62	001.47	005.24	0276.3	01.73	01.65	30.6
64059	2	790806	042841	001.33	006.46	0297.3	01.66	01.56	28.5	000.13	001.63	0227.9	02.36	38.41						
64059	3	791015	044638	001.25	009.28	0305.0	01.76	01.70	27.4	000.13	001.79	0238.9	02.32	36.62						
64059	4	791213	045880	001.41	006.32	0308.4	02.17	01.95	27.5	000.08	001.50	0227.5	02.74	38.54						
64060	0	781218	037385	001.10	008.22	0502.9	07.06	05.91	17.1	000.12	000.77	0368.2	09.44	23.98	000.45	002.23	0475.7	07.43	06.26	18.4
64060	1	790305	038872	001.83	042.90	0500.4	02.24	02.15	15.5	000.24	002.76	0374.5	03.01	23.37	001.34	032.62	0466.0	01.95	01.88	17.3
64060	2	790814	042145	001.55	032.63	0512.7	02.48	02.50	15.6	000.15	002.18	0399.9	03.61	21.96						
64060	3	791022	044075	001.81	037.21	0477.7	02.12	01.95	15.4	000.24	003.82	0359.1	02.98	24.24						
64060	4	791217	045261	002.40	042.90	0495.9	02.49	02.18	15.5	000.27	003.92	0373.7	03.33	23.29						
74002	0	771019	012689	000.68	007.18	0644.8	02.09	01.92	13.5	000.10	000.81	0393.7	02.49	22.43	000.40	003.24	0560.2	02.22	02.03	15.6
74002	1	780325	018602	000.70	008.07	0581.4	02.31	02.32	14.9	000.11	000.85	0405.5	02.67	21.78	000.46	003.39	0558.9	02.36	02.07	15.6
74002	2	780608	020826	000.90	009.63	0568.0	01.90	01.95	15.1	000.13	001.38	0387.9	01.98	22.71	000.65	011.72	0546.7	01.57	01.75	15.6
74002	3	780828	025488	003.29	049.49	0530.7	01.72	01.71	14.3	000.50	005.79	0382.0	01.69	22.58	001.66	039.86	0643.2	02.60	02.38	12.4
74002	4	781127	027219	000.87	010.04	0589.1	02.58	02.16	14.6	000.15	003.15	0413.5	02.85	21.17	001.18	022.75	0566.3	01.87	01.57	14.6
74003	0	771015	008827	000.65	003.03	0565.7	07.57	07.19	15.5	000.06	000.07	0406.7	06.05	21.79	000.21	000.34	0524.3	07.05	06.73	16.8
74003	1	780317	012422	001.41	009.00	0562.4	06.95	05.99	15.3	000.11	000.28	0406.0	05.90	21.80	000.44	001.80	0536.6	06.72	05.83	16.4
74003	2	780601	014758	001.39	011.20	0542.1	06.18	06.10	15.7	000.14	000.48	0410.6	05.72	21.54	000.89	004.57	0514.1	06.11	05.99	16.9
74003	3	780818	019360	001.55	012.07	0540.5	06.52	06.31	15.7	000.18	000.54	0406.7	06.12	21.73	001.05	004.19	0513.8	06.39	05.93	16.9
74003	4	781115	022059	000.63	003.37	0522.8	05.99	04.79	15.7	000.07	000.07	0389.9	06.07	22.72	000.30	000.72	0497.6	05.97	04.78	17.7
74004	0	771022	009352	000.39	004.20	0756.3	01.38	01.26	11.6	000.08	000.16	0518.2	01.73	17.10	000.66	002.81	0696.4	01.62	01.49	12.6
74004	1	780321	012505	000.33	004.18	0728.4	01.25	01.08	12.0	000.08	000.34	0504.2	01.69	17.56	000.54	002.19	0680.9	01.47	01.25	12.9
74004	2	780601	013884	000.42	005.63	0747.5	01.17	01.12	11.7	000.10	000.22	0523.0	01.55	16.94	000.71	002.52	0696.0	01.50	01.43	12.6
74004	3	780818	016135	000.40	002.26	0732.4	01.40	01.35	12.0	000.11	000.07	0511.8	01.70	17.31	000.29	000.51	0703.0	01.59	01.65	12.5
74004	4	781116	020256	000.92	009.94	0711.3	01.24	01.10	12.2	000.10	000.17	0490.9	01.44	18.04	001.43	003.56	0666.4	01.42	01.26	13.1
74005	0	771110	008423	000.73	011.55	0494.2	03.37	03.09	17.2	000.10	001.10	0414.5	02.39	21.29	000.36	005.16	0474.2	03.22	02.93	18.3
74005	1	780324	012084	000.83	011.37	0488.7	03.34	02.93	17.6	000.09	000.94	0413.0	02.84	21.38	000.77	005.57	0458.0	03.12	02.71	18.9
74005	2	780609	014021	000.82	012.18	0500.9	04.34	04.07	17.0	000.09	001.27	0390.8	03.06	22.56	000.45	005.20	0474.4	03.92	03.58	18.3
74005	3	780901	016261	001.05	019.98	0516.0	02.61	02.73	15.1	000.15	002.30	0408.6	02.55	21.49	000.57	010.26	0476.6	02.53	02.66	17.9
74005	4	781128	017808	001.29	019.28	0461.6	03.26	02.86	17.9	000.20	001.97	0377.4	03.07	23.27	000.98	010.06	0434.1	02.93	02.58	19.5
74006	0	771202	008123	002.15	019.34	0516.2	01.42	01.34	16.0	000.22	003.89	0390.6	00.69	22.32	001.33	009.58	0506.6	01.38	01.31	16.8
74006	1	780417	010834	002.24	019.25	0549.3	05.26	04.97	15.1	000.28	004.54	0444.9	04.96	19.58	001.23	015.10	0532.3	04.11	03.95	15.9
74006	2	780614	012174	001.61	013.92	0517.0	05.27	04.81	15.3	000.22	002.74	0422.0	05.01	20.77	001.16	012.56	0514.5	11.21	10.25	16.4
74006	3	780830	014411	002.06	019.57	0528.9	02.27	02.28	15.7	000.49	006.03	0424.4	00.47	20.37	001.63	015.41	0517.6	01.51	01.52	16.2
74006	4	781128	016740	001.49	013.43	0524.2	01.68	01.44	16.1	000.26	001.16	0426.7	00.69	20.66	001.56	013.27	0501.4	01.59	01.37	16.8
74007	0	771130	007408	000.92	007.68	0503.1	02.03	01.75	17.1	000.11	000.46	0383.4	01.26	23.07	000.83	003.59	0473.2	01.72	01.50	18.4
74007	1	780331	009349	000.97	009.97	0528.7	02.07	01.94	15.2	000.14	001.63	0437.7	01.60	20.12	000.47	005.66	0517.8	01.98	01.93	15.7
74007	2	780627	011351	001.40	017.47	0476.3	01.60	01.63	17.5	000.32	004.34	0386.7	01.11	22.48	003.52	020.70	0437.4	01.23	01.24	18.4
74007	3	780920	014095	001.31	014.14	0510.9	01.64	01.50	15.5	000.22	002.31	0419.1	01.51	20.94	000.79	008.77	0481.4	01.46	01.37	17.8
74007	4	781215	016539	001.62	019.00	0475.0	01.44	01.20	17.4	000.27	002.51	0386.0	01.19	22.69	001.54	014.68	0441.6	01.24	01.05	18.8
74009	0	771216	008294	001.22	017.98	0333.6	02.17	02.14	24.2	000.32	009.46	0237.5	03.03	35.00	000.59	014.33	0316.9	01.90	01.87	25.9
74009	1	780526	011883	002.23	018.86	0311.4	01.68	01.53	25.5	000.56	014.51	0234.1	02.24	34.28	002.01	024.67	0292.1	01.10	00.99	26.2
74009	2	780815	013851	003.40	029.38	0309.4	01.41	01.40	24.2	000.65	011.99	0228.2	02.48	35.60	002.12	019.06	0294.9	01.34	01.36	26.7
74009	3	781106	016229	002.39	029.61	0313.6	01.20	01.34	24.1	000.53	019.59	0240.0	01.83	32.55	001.99	026.83	0305.1	01.13	00.97	25.3
74009	4	790206	017030	002.02	014.98	0290.6	01.62	01.48	27.7	000.73	018.44	0215.0	01.88	36.01	001.83	027.70	0282.0	00.77	00.71	26.7
74010	0	771212	013219	000.39	004.13	0555.3	01.70	01.53	15.8	000.05	000.17	0383.7	01.48	23.09	000.27	001.18	0521.1	01.52	01.36	16.9
74010	1	780413	017357	000.37	002.61	0592.4	02.11	01.94	14.8	000.05	000.11	0424.9	02.09	20.85	000.16	000.79	0554.7	01.75	01.53	15.9
74010	2	780707	020747	000.52	003.67	0574.6	01.47	01.60	15.2	000.07	000.32	0429.6	01.77	20.61	000.29	002.09	0533.7	01.25	01.38	16.4
74010	3	780926	023734	000.56	001.64	0564.8	01.74	01.73	15.6	000.08	000.01	0405.4	01.73	21.86	000.25	000.58	0524.3	01.57	01.53	16.8
74010	4	781228	026539	000.59	001.25	0543.1	01.82	01.46	16.2	000.09	000.00	0392.6	01.77	22.57	000.34	000.73	0515.6	01.75	01.39	17.1
74011	0	771219	012574	001.53	017.03	0347.5	02.34	01.97	23.4	001.04	013.12	0231.0	03.27	34.79	001.29	013.07	0335.4	02.26	01.94	24.6
74011	1	780413	017592	001.65	023.31	0341.9	02.29	02.05	23.1	001.31	013.71	0236.5	03.67	33.94	001.35	015.52	0334.9	02.30	02.09	24.3
74011	2	780712	020586	001.64	021.69	0331.0	02.11	01.95	23.9	001.00	011.09	0225.4	03.16	36.06	001.53	023.02	0308.3	01.87	01.75	25.3
74011	3	780926	024732	001.57	018.61	0348.2	02.32	02.19	23.2	000.97	011.18	0234.7	03.33	34.73	001.39	015.68	0340.7	02.15	02.08	23.9
74011	4	781221	029772	001.92	023.17	0357.1	02.70	02.35	22.2	001.27	021.60	0260.2	04.53	29.75	001.56	015.96	0362.0	03.16	02.76	22.6
74012	0	780109	019353	001.09	012.74	0306.1	01.74	01.51	26.9	000.83	004.57	0208.4	03.02	40.65	000.98	005.73	0295.5	03.18	02.77	28.8
74012	1	780426	023779	001.12	013.29	0326.8	02.29	02.05	25.2	000.85	005.60	0226.5	03.91	37.25	001.00	010.08	0310.1	02.07	01.89	26.9
74012	2	780720	028270	001.06	014.72	0316.3	01.66	01.89	25.9	000.83	008.00	0212.6	02.90	38.93	001.09	012.32	0299.6	01.35	01.55	27.5
74012	3	781004	030825	000.98	010.45	0318.3	02.42	02.21	26.3	000.78	006.13	0229.4	04.87	36.71	000.97	008.72	0309.0	02.32	02.13	27.2
74012	4	790410	036532	001.14	009.30	0322.6	02.76	02.30	26.0	000.97	004.13	0221.9	05.43	38.32	001.09	006.64	0318.8	02.57	02.15	26.6
74014	0	780116	004606	002.96	030.51	0541.2	01.11	00.94	14.8	001.13	018.65	0437.9	00.80	18.84	002.84	027.72	0515.4	00.53	00.45	15.6
74014	1	780427	006422	002.34	020.76	0536.4	01.47	01.46	15.4	000.69	013.49	0448.7	01.00	18.98	001.33	011.68	0513.5	01.27	01.22	16.5
74014	2	780724	008749	001.61	025.38	0617.0	00.40	00.43	13.4	000.40	013.14	0526.1	00.23	16.18	001.54	018.26	0587.4	00.25	00.28	14.7
74014	3	781009	011313	002.38	024.72	0540.5	01.65	01.50	15.1	000.85	011.42	0459.4	01.33	18.47	001.68	018.78	0521.1	01.31	01.24	15.9
74014	4	790103	013774	002.97	030.95	0523.2	01.77	01.40	15.3	000.97	011.54	0411.5	01.52	20.50	001.55	015.75	0497.0	01.98	01.57	16.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
74015	0	780117	007841	000.32	003.08	0726.3	01.15	01.02	12.1	000.11	000.34	0487.0	02.18	18.18	000.35	000.50	0573.8	01.70	01.51	15.4
74015	1	780428	012050	000.45	003.10	0725.6	02.05	01.85	12.1	000.14	000.31	0525.5	03.23	16.85	000.39	002.19	0654.0	02.34	02.10	13.4
74015	2	780721	015752	000.44	002.35	0700.6	01.75	01.72	12.6	000.17	000.18	0488.3	01.89	18.13	000.38	000.78	0673.2	02.33	02.30	13.1
74015	3	781002	017325	000.64	005.24	0729.1	02.02	01.78	12.0	000.12	000.21	0506.0	02.52	17.50	000.39	004.25	0671.6	02.13	01.85	13.0
74015	4	790102	018793	000.76	004.74	0705.2	02.15	01.67	12.4	000.12	000.02	0476.7	02.57	18.59	000.54	001.42	0655.1	02.51	02.04	13.4
74016	0	780217	008520	000.53	016.99	0477.7	01.36	01.16	17.5	000.08	008.44	0302.4	02.41	28.07	000.36	011.46	0472.4	01.59	01.37	18.0
74016	1	780510	009766	000.45	014.92	0465.3	01.29	01.09	19.1	000.06	007.01	0283.8	01.92	30.06	000.37	009.73	0448.7	01.26	01.07	19.3
74016	2	780803	011178	000.43	012.64	0475.2	01.08	01.05	17.9	000.07	007.38	0271.9	01.57	31.26	000.26	010.00	0422.4	01.16	01.11	20.2
74016	3	781030	012276	000.39	013.78	0465.0	01.15	00.99	18.2	000.06	006.56	0266.5	01.57	32.02	000.30	009.40	0440.8	01.15	00.99	19.4
74016	4	790201	013357	000.62	019.79	0419.8	01.61	01.29	19.6	000.10	008.76	0242.7	01.75	34.54	000.52	013.94	0392.3	01.53	01.31	21.3
74017	0	780125	009998	001.12	015.86	0392.8	01.23	01.08	21.0	000.19	005.50	0262.8	01.79	32.60	000.84	011.10	0367.3	01.37	01.19	22.8
74017	1	780428	012097	001.11	015.25	0421.0	01.63	01.47	19.8	000.23	007.17	0265.9	01.98	31.91	001.15	011.02	0405.4	01.56	01.50	20.8
74017	2	780830	016852	001.57	017.21	0448.7	01.12	01.13	18.4	000.17	007.22	0269.1	01.25	31.56	001.27	013.06	0422.2	00.99	01.06	19.8
74017	3	781127	019310	000.99	016.06	0404.9	01.51	01.27	20.5	000.25	007.89	0267.1	02.29	31.64	001.10	012.23	0391.5	01.56	01.38	21.6
74017	4	790214	020709	000.78	012.71	0438.8	01.12	00.91	19.2	000.15	004.81	0277.2	01.41	31.09	000.99	011.02	0403.3	01.29	01.06	20.9
74018	0	780227	014761	000.51	001.67	0694.7	01.79	01.74	12.7	000.10	000.12	0496.3	01.60	17.85	000.58	001.77	0656.5	02.01	01.98	13.4
74019	1	780627	017556	000.32	001.20	0669.2	02.05	01.97	13.2	000.09	000.08	0471.8	01.65	18.78	000.54	000.70	0633.3	02.23	02.13	13.9
74018	2	780915	019235	000.40	002.95	0702.9	02.45	02.14	12.5	000.10	001.36	0497.6	02.20	17.73	000.93	002.38	0663.6	02.71	02.38	13.2
74018	3	781214	019876	000.63	006.44	0819.3	01.89	01.53	10.7	000.09	001.08	0582.3	02.57	15.18	001.55	003.15	0738.4	01.91	01.65	11.8
74018	4	790228	021356	000.58	006.23	0714.4	01.65	01.41	12.2	000.10	000.30	0499.6	02.11	17.72	000.80	002.71	0687.3	01.89	01.60	12.7
74019	0	780315	012284	000.94	010.48	0348.2	02.13	01.80	24.1	000.41	004.52	0241.6	03.06	35.48	000.72	010.31	0322.4	01.80	01.53	26.0
74019	1	780602	014519	000.76	010.92	0343.1	01.40	01.29	24.5	000.36	005.91	0237.0	02.13	35.84	000.65	012.12	0320.2	01.23	01.13	25.9
74019	2	780829	024341	000.68	011.30	0401.7	00.83	00.93	21.0	000.18	003.51	0306.2	01.08	28.40	000.59	009.39	0401.4	00.85	00.95	21.2
74019	3	781128	026988	001.47	011.90	0332.8	01.54	01.38	24.9	000.47	006.30	0246.5	02.63	34.38	001.38	014.67	0321.1	01.37	01.23	25.4
74019	4	790216	030102	001.18	010.46	0360.1	01.31	01.12	23.3	000.31	006.38	0257.9	01.94	32.97	001.21	011.39	0357.8	01.22	01.04	23.3
74020	0	780406	012196	002.27	052.21	0620.2	01.46	01.31	12.5	001.33	024.85	0497.4	02.61	16.40	001.74	038.77	0595.9	01.34	01.20	13.3
74020	1	780623	013482	001.12	013.36	0578.5	05.73	05.27	14.7	000.21	001.02	0487.3	07.34	18.12	000.43	000.67	0557.5	05.50	05.15	15.8
74020	2	780913	015159	001.24	016.64	0595.5	05.66	05.54	14.2	000.26	001.35	0508.8	07.19	17.33	000.80	009.29	0566.3	05.53	05.51	15.2
74020	3	781212	017023	002.95	045.59	0536.0	05.48	04.60	14.4	000.43	002.36	0470.6	07.26	18.64	002.55	041.30	0515.3	05.13	04.31	15.0
74020	4	790226	018412	005.16	063.17	0530.6	04.80	04.30	13.7	001.19	009.80	0485.4	05.48	17.58	003.63	051.17	0510.4	04.04	03.63	14.7
74021	0	780117	024229	000.68	008.71	0733.9	01.76	01.59	11.8	000.14	000.59	0530.8	02.17	16.66	000.80	003.39	0689.5	01.96	01.75	12.7
74021	1	780501	029849	000.69	007.79	0714.9	01.59	01.39	12.2	000.13	000.31	0517.1	01.91	17.12	000.86	002.37	0668.7	01.37	01.63	13.1
74021	2	780802	040078	000.58	007.34	0695.4	01.17	01.16	12.5	000.13	000.42	0501.7	01.80	17.64	001.07	003.24	0672.5	01.48	01.47	13.0
74021	3	781026	046706	000.83	008.84	0768.8	01.50	01.27	11.3	000.16	000.06	0544.9	02.05	16.26	001.14	005.65	0701.2	01.56	01.32	12.6
74021	4	790126	049840	001.52	011.09	0704.7	00.85	00.70	12.2	000.18	000.11	0500.4	01.43	17.70	001.17	002.39	0639.2	01.31	01.09	13.7
74023	0	780301	022223	000.62	014.64	0401.5	01.35	01.23	20.8	000.08	006.01	0254.2	01.72	33.60	000.63	011.12	0384.2	01.47	01.38	21.9
74023	1	780518	025629	001.55	013.59	0419.0	02.02	01.78	19.9	000.26	004.94	0259.4	02.43	33.09	001.81	010.23	0387.6	02.36	02.10	21.5
74023	2	780810	030248	001.22	012.16	0417.3	01.48	01.68	20.1	000.23	004.59	0261.9	01.93	32.87	001.15	010.00	0394.7	01.53	01.79	21.4
74023	3	781113	034010	001.08	012.98	0422.2	01.89	01.52	19.9	000.20	005.47	0258.3	02.37	33.15	001.47	009.99	0389.1	01.36	01.59	21.6
74024	0	780308	029420	000.69	015.33	0421.2	01.69	01.48	19.8	000.10	008.39	0265.8	02.35	31.75	000.60	010.98	0399.2	01.76	01.53	21.1
74024	1	780518	034312	000.85	016.99	0423.7	01.29	01.26	19.6	000.18	009.91	0262.3	02.07	31.85	000.63	012.21	0404.3	01.36	01.33	20.8
74024	2	780811	040828	000.99	017.48	0436.1	01.29	01.24	19.0	000.14	009.56	0256.5	01.80	32.60	000.83	013.84	0409.7	01.37	01.30	20.4
74024	3	781027	047376	000.63	015.76	0432.1	01.62	01.44	19.3	000.16	009.08	0259.6	02.33	32.32	000.51	011.34	0407.4	01.58	01.49	20.7
74025	0	780406	017032	000.95	018.99	0668.2	03.81	03.41	12.6	000.13	000.66	0459.3	06.53	19.25	000.32	005.26	0652.7	03.84	03.41	13.3
74025	1	780622	028298	000.49	020.91	0634.4	02.44	02.32	13.2	000.14	001.08	0448.8	04.95	19.67	000.52	010.91	0616.6	02.43	02.30	13.9
74025	2	780912	029428	001.21	027.75	0613.9	02.23	02.07	13.4	000.18	001.82	0441.9	04.93	19.91	000.75	018.01	0603.8	02.42	02.24	13.9
74025	3	781205	030092	001.55	016.93	0613.7	03.24	02.72	13.7	000.48	000.53	0435.3	05.60	20.26	000.91	003.05	0588.0	03.34	02.82	14.8
74025	4	790222	034357	000.73	007.47	0581.7	03.19	02.81	14.9	000.18	000.23	0424.1	05.40	20.86	000.41	001.68	0537.9	03.17	02.77	16.3
74026	0	780411	025999	000.30	001.37	0616.6	01.90	01.67	14.3	000.03	000.09	0457.3	02.11	19.38	000.42	001.41	0604.8	01.87	01.68	14.5
74026	1	780627	030846	000.37	003.96	0647.5	01.43	01.35	13.5	000.08	002.67	0510.4	02.22	17.22	000.44	005.46	0644.2	01.53	01.72	13.5
74026	2	780914	034420	000.64	005.88	0630.4	01.84	01.79	13.8	000.06	000.99	0465.6	02.32	18.97	000.53	003.82	0607.8	01.86	01.79	14.4
74026	3	781206	038971	000.47	004.59	0586.0	01.77	01.47	14.9	000.04	000.09	0432.9	01.98	20.47	000.43	001.46	0557.5	01.57	01.29	15.8
74026	4	790222	041628	000.69	011.64	0592.2	01.81	01.52	14.5	000.09	002.08	0458.3	02.50	19.20	000.63	006.61	0588.2	01.99	01.76	14.7
74027	0	780420	027330	000.84	010.85	0636.9	01.44	01.30	13.5	000.11	001.95	0474.2	01.26	18.57	000.88	015.87	0632.1	01.75	01.58	13.4
74027	1	780713	031152	000.85	014.37	0645.3	01.30	01.40	13.2	000.15	003.58	0449.5	01.50	19.47	002.47	012.07	0668.9	01.77	01.90	12.7
74027	2	780925	033720	001.26	018.88	0672.2	01.18	01.23	12.6	000.18	002.84	0465.7	01.34	18.84	001.18	020.16	0626.7	01.17	01.22	13.3
74027	3	781219	038979	001.16	013.97	0626.5	01.89	01.55	13.6	000.15	001.95	0420.3	01.99	20.92	000.97	011.09	0578.4	01.30	01.48	14.8
74027	4	790301	042157	001.42	018.78	0625.2	02.00	01.71	13.5	000.13	002.90	0479.7	02.18	18.30	001.27	020.59	0599.1	01.97	01.68	13.9
74028	0	780424	017329	000.61	008.36	0558.4	04.13	03.72	14.5	000.13	000.32	0459.2	05.37	19.27	000.31	001.69	0578.5	04.26	03.84	15.2
74028	1	780718	018800	000.55	007.67	0561.5	03.45	03.32	15.4	000.10	000.21	0394.6	04.46	22.44	000.24	001.03	0537.1	03.55	03.43	16.6
74031	0	781002	016650	001.04	016.44	0687.8	01.40	01.31	12.4	000.15	000.56	0502.4	02.26	17.60	000.55	003.65	0699.6	02.04	01.84	12.5
74031	1	781220	017562	000.66	008.11	0685.3	01.74	01.45	12.7	000.15	001.86	0497.3	02.02	17.71	000.36	001.92	0654.6	01.93	01.61	13.4
74031	2	790315	019523	002.65	029.18	0618.1	01.50	01.34	13.2	002.47	032.92	0412.6	01.67	18.78	002.53	023.92	0599.8	01.56	01.48	13.7
74031	3	790828	026157	001.68	021.48	0632.9	01.48	01.43	13.2	001.01	008.78	0462.8	01.86	18.48						
74031	4	791017	027415	001.78	024.22	0644.7	01.58	01.44	12.9	000.95	005.42	0454.3	02.22	19.04						

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND PASS

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
74032	0	790102	010840	000.90	014.10	0443.1	01.83	01.46	18.9	000.20	007.65	0243.0	02.15	34.69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
74032	1	790313	011228	000.76	013.90	0427.1	01.70	01.39	19.6	000.21	008.23	0255.8	02.42	32.92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
74032	2	790815	012814	000.86	013.46	0434.1	01.34	01.36	19.4	000.16	007.84	0262.4	01.86	32.23						
74032	3	791016	013924	000.95	016.73	0414.2	01.59	01.54	20.0	000.20	008.51	0254.8	01.77	32.99						
74032	4	800118	014358	000.93	013.92	0393.0	01.54	01.24	21.2	000.22	007.87	0241.2	01.99	34.87						

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
25001	0	770929	072476	001.78	019.54	0589.2	04.06	04.37	14.2	001.42	007.41	0460.6	06.78	18.60	002.17	023.60	0638.3	05.13	05.44	13.0
25001	M	771013	072639	002.44	021.70	0659.0	04.75	04.62	12.7	001.57	012.13	0434.1	06.13	19.36	002.39	021.59	0615.5	04.77	04.53	13.5
25001	1	780321	075271	003.53	025.15	0646.8	05.50	04.83	12.7	001.61	012.28	0436.1	07.22	19.26	002.26	020.18	0602.1	05.31	04.68	13.8
25001	2	780608	076856	005.95	070.13	0589.3	03.86	03.58	12.3	002.09	036.65	0414.0	04.31	18.54	004.53	082.85	0548.8	03.57	03.33	12.7
25001	3	780905	079685	007.49	051.83	0615.7	04.63	04.33	12.3	002.15	025.33	0466.2	05.72	17.29	004.71	054.71	0575.3	04.34	04.05	13.1
25001	4	790319	082537	002.63	041.44	0637.7	03.70	03.23	12.5	001.32	016.95	0468.1	04.97	17.77	001.96	025.08	0593.7	03.80	03.34	13.8
25002	0	771006	020896	001.18	020.81	0381.2	04.57	04.16	21.2	000.62	012.19	0301.1	05.81	27.52	001.25	021.58	0368.4	04.82	04.47	21.8
25002	M	771206	021487	001.57	021.97	0425.2	03.64	03.28	19.1	000.53	009.26	0329.2	05.77	25.67	000.90	012.63	0399.6	04.00	03.39	20.9
25002	1	780315	022334	001.23	019.76	0419.0	04.58	03.80	19.5	000.54	009.80	0317.1	06.36	26.53	001.02	016.61	0396.9	03.97	03.33	20.8
25002	2	780606	023084	001.24	024.90	0416.3	03.93	03.76	19.3	000.71	010.98	0312.4	06.21	26.72	001.44	019.43	0387.1	03.54	03.62	21.0
25002	3	780824	023738	001.64	026.78	0413.2	03.54	03.46	19.3	000.83	013.55	0307.9	05.43	26.72	001.39	020.81	0401.4	03.69	03.63	20.7
25002	4	781116	024743	001.93	026.89	0409.0	03.35	03.03	19.4	000.90	013.24	0310.3	05.08	26.55	002.28	020.36	0375.7	03.34	03.02	21.3
25003	0	771029	052691	001.54	046.77	0885.9	04.27	03.93	09.2	000.79	013.25	0575.3	05.93	14.81	001.21	038.52	0839.4	04.12	03.88	09.8
25003	M	771212	053410	001.15	042.07	0927.4	03.37	03.05	09.9	000.25	005.41	0689.0	04.02	12.70	001.08	045.70	0870.9	02.92	02.69	09.3
25003	1	780321	054633	011.43	056.21	0903.1	04.43	03.97	09.6	004.28	013.95	0690.0	05.14	12.22	010.34	069.99	0802.5	03.18	02.85	09.3
25003	2	780605	055079	001.21	048.18	0910.7	02.73	02.98	09.0	000.23	007.02	0693.3	03.01	12.58	001.45	031.63	0850.9	02.28	02.51	09.8
25003	3	780824	057600	001.27	049.21	0912.5	03.14	03.26	09.9	000.26	006.27	0697.8	03.90	12.52	001.22	053.62	0847.0	02.75	02.81	09.4
25003	4	781127	059276	002.85	076.53	0777.2	05.06	04.32	09.8	000.93	016.76	0598.0	07.24	14.14	002.30	070.25	0751.6	04.87	04.18	10.2
25004	0	7711[illegible]	[illegible]	[illegible]3.24	060.44	0553.1	03.13	02.67	13.5	001.39	012.12	0456.8	03.83	18.47	002.54	043.27	0526.6	03.04	02.60	14.7
25004	M	771221	[illegible]	002.88	026.82	0585.9	02.75	02.24	13.9	001.37	012.56	0438.4	03.27	19.22	001.63	009.16	0556.9	03.88	03.13	15.3
25004	1	780327	036879	002.96	030.24	0543.4	03.00	02.68	14.8	001.61	012.50	0422.8	04.46	19.82	002.12	018.56	0528.9	03.05	02.72	15.7
25004	2	780615	038161	002.72	033.87	0607.7	03.29	03.14	13.2	001.44	014.33	0461.0	04.05	18.17	002.47	026.11	0562.4	02.97	02.87	14.5
25004	3	780905	039167	002.64	044.83	0562.9	02.10	01.95	13.8	001.49	018.41	0429.8	02.84	19.14	002.40	031.94	0556.5	02.40	02.23	14.4
25004	4	781204	040344	003.81	045.09	0552.1	02.32	02.02	14.0	001.18	012.21	0435.8	03.24	19.33	002.01	024.43	0524.5	02.30	01.97	15.5
25005	0	771116	091033	002.35	011.69	0695.2	03.44	02.99	12.3	001.40	004.46	0441.8	04.89	19.57	002.63	006.15	0665.5	03.18	02.75	12.9
25005	M	771217	091703	001.53	013.40	0741.6	02.54	02.16	11.6	000.31	003.04	0547.1	02.22	16.04	001.45	006.10	0693.7	02.23	01.91	12.5
25005	1	780404	093741	001.55	013.47	0761.1	02.56	02.21	11.3	000.54	003.70	0557.2	02.43	15.70	001.58	006.79	0715.2	02.45	02.13	12.1
25005	2	780630	095175	001.87	011.17	0703.3	02.24	02.24	12.2	000.44	004.02	0493.2	02.50	17.70	002.34	011.67	0665.5	02.22	02.17	12.8
25005	3	780925	096757	001.66	018.53	0742.6	02.18	02.27	11.4	000.45	004.43	0550.4	02.27	15.87	002.41	014.37	0701.3	02.11	02.28	12.1
25005	4	781215	098338	001.43	014.10	0732.5	02.14	01.76	11.7	000.19	002.14	0667.4	03.17	13.21	001.43	005.69	0678.0	01.88	01.55	12.8
25006	0	771129	082271	002.44	046.28	0702.2	05.29	04.50	11.3	001.43	012.05	0509.3	09.13	16.65	002.00	031.92	0670.8	05.10	04.42	12.1
25006	M	780210	084055	002.66	050.10	0724.3	05.66	04.75	10.9	001.44	013.56	0483.9	08.56	17.40	002.54	050.82	0636.9	05.29	04.61	12.2
25006	1	780413	085871	002.30	044.10	0690.0	04.71	04.27	11.5	001.18	010.90	0478.3	07.54	17.76	002.18	037.93	0639.5	04.46	04.06	12.5
25006	2	780705	088646	002.70	048.98	0644.1	04.84	04.56	12.2	001.39	011.74	0454.0	08.22	18.59	002.33	043.66	0642.0	05.36	05.27	12.3
25006	3	780928	089598	003.13	048.45	0625.4	05.91	05.51	12.5	001.71	012.75	0472.2	09.92	17.82	002.94	046.89	0585.7	05.61	05.34	13.2
25006	4	790102	090707	002.93	044.53	0608.8	05.39	04.30	12.9	001.42	008.62	0494.3	11.61	17.31	002.13	024.61	0626.9	06.37	05.06	13.1
25007	0	771205	049475	003.06	041.27	0612.8	02.94	02.45	12.9	001.00	005.16	0393.0	03.64	21.94	002.27	035.27	0565.8	02.67	02.23	14.1
25007	M	771215	049831	001.94	014.38	0597.7	02.72	02.34	14.2	001.08	003.74	0418.8	04.22	20.71	001.54	009.04	0562.1	02.52	02.32	15.2
25007	1	780330	050874	002.03	019.85	0633.6	03.24	03.00	13.2	001.36	004.68	0436.4	04.89	19.79	001.69	012.91	0616.4	03.17	02.86	13.8
25007	2	780620	054368	002.21	013.57	0604.0	02.75	02.56	14.0	001.27	003.85	0405.4	04.22	21.35	001.88	010.40	0581.9	02.56	02.39	14.6
25007	3	780908	055514	002.37	014.85	062C.8	03.27	02.92	13.6	001.43	004.19	0408.2	05.22	21.15	001.86	011.17	0588.7	03.17	02.85	14.6
25007	4	781207	056669	001.99	012.15	0629.6	03.36	02.78	13.5	001.08	003.71	0406.0	05.13	21.36	001.41	008.07	0589.7	03.17	02.63	14.6
25008	0	771207	071349	003.60	042.05	0613.2	03.24	02.57	12.8	000.98	008.09	0463.7	03.63	18.49	002.24	017.31	0585.6	03.08	02.55	14.3
25008	M	780204	071386	003.53	037.64	0711.5	03.51	03.19	11.3	001.00	011.79	0510.2	03.70	16.67	002.37	020.73	0675.1	03.40	03.09	12.4
25008	1	780509	079131	003.01	086.60	0700.3	03.35	03.11	10.5	001.34	013.46	0511.9	03.60	16.50	002.47	019.95	0666.5	03.38	03.16	12.5
25008	2	780801	082846	004.21	034.91	0603.0	02.69	02.56	13.2	001.36	009.93	0430.1	03.14	19.71	002.79	015.71	0591.5	02.89	02.71	14.1
25008	3	781024	087334	003.04	027.41	0622.7	03.56	03.19	13.1	001.35	008.40	0453.5	04.26	18.83	002.95	020.46	0584.4	03.48	03.13	14.1
25008	4	790125	090421	003.53	062.62	0799.0	03.93	03.25	09.8	001.26	015.78	0593.6	03.82	14.25	002.82	030.65	0774.4	03.86	03.20	10.6
25009	0	771207	047830	003.96	036.82	0521.5	03.74	03.08	15.0	001.65	005.41	0403.4	06.20	21.26	002.60	025.03	0492.8	03.36	02.76	16.4
25009	M	771230	047928	002.86	024.16	0530.2	03.49	02.95	15.4	001.66	005.40	0399.1	06.03	21.48	002.16	013.88	0505.9	03.34	02.83	16.5
25009	1	780405	048980	002.94	022.72	0562.7	03.55	03.10	14.6	001.44	005.21	0423.8	06.08	20.31	002.35	017.70	0540.0	03.58	03.11	15.4
25009	2	780710	049858	002.97	025.77	0554.8	03.25	03.10	14.7	001.44	005.87	0420.2	05.49	20.44	002.10	014.82	0542.7	03.15	02.93	15.4
25009	3	781003	050820	003.24	024.03	0556.4	03.55	03.31	14.7	001.50	005.42	0419.4	05.62	20.50	002.10	016.10	0523.3	03.23	03.01	15.9
25009	4	790102	051793	006.10	044.59	0528.4	03.24	02.56	14.4	001.51	006.14	0401.0	06.20	21.35	002.06	016.81	0517.1	03.29	02.61	16.1
25010	0	771209	082634	002.58	032.25	0294.0	04.88	04.35	25.1	001.17	003.48	0258.6	08.07	33.12	002.28	028.96	0272.4	04.51	03.93	27.2
25010	M	771221	082859	002.33	019.57	0311.8	05.73	04.58	25.3	001.10	003.15	0284.7	08.84	30.25	002.11	014.35	0284.8	05.80	04.67	28.2
25010	1	780328	085658	002.43	017.83	0328.9	04.93	04.46	24.3	001.04	003.10	0275.0	07.45	31.32	002.45	016.53	0294.2	04.72	04.32	27.0
25010	2	780619	087927	002.03	017.43	0317.5	04.29	03.95	25.2	000.90	003.62	0271.5	06.18	31.67	002.06	014.21	0297.2	04.35	04.03	27.2
25010	3	780908	089846	002.16	018.64	0337.3	04.11	04.06	23.7	000.93	003.56	0280.3	05.91	30.70	001.95	013.66	0301.9	03.78	03.75	26.9
25010	4	781129	092018	001.96	013.49	0303.9	03.53	03.10	26.8	000.91	003.52	0251.4	05.37	34.14	001.73	009.92	0275.4	03.27	02.95	29.9
25011	0	771214	078911	002.64	028.09	0413.7	05.04	04.53	19.0	001.17	005.71	0335.2	05.81	25.49	002.45	021.22	0397.2	05.16	04.64	20.2
25011	M	771229	079104	002.13	006.43	0412.0	05.58	04.52	20.7	001.02	003.31	0321.5	05.98	26.88	002.11	004.26	0399.6	05.53	04.62	21.6
25011	1	780501	082121	002.09	006.99	0444.0	06.71	05.94	19.2	001.06	003.65	0351.4	07.30	24.60	002.00	004.03	0418.8	06.12	05.49	20.5
25011	2	780719	082888	001.47	006.71	0457.0	02.93	03.30	13.8	000.57	002.87	0357.6	03.54	24.37	001.55	004.68	0425.4	02.35	02.85	20.2
25011	3	781011	083894	001.43	006.58	0489.1	03.88	03.42	17.6	000.45	002.61	0392.4	04.72	22.29	001.39	004.01	0459.6	03.59	03.27	18.8
25011	4	790125	085552	001.38	008.56	0472.3	03.67	03.39	13.1	000.31	002.43	0362.9	04.10	24.12	001.28	005.06	0439.6	03.33	02.79	19.6

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	DOOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
25012	0	771216	050950	009.90	147.33	0588.8	04.82	04.13	10.4	003.01	032.84	0456.7	06.19	17.13	014.27	191.73	0524.2	04.44	03.80	10.1
25013	0	771222	080695	003.95	074.63	0630.6	05.43	04.50	11.7	001.89	017.76	0457.3	06.89	18.05	003.47	059.09	0622.1	06.01	04.99	12.2
25013	M	780112	081147	002.81	032.23	0675.3	05.43	04.52	12.1	001.81	014.83	0476.6	06.61	17.54	002.63	020.82	0652.4	05.51	04.73	12.7
25013	1	780425	084685	004.07	097.40	0589.3	04.49	04.26	11.7	001.99	023.34	0449.2	06.57	18.02	004.00	086.13	0560.0	04.68	04.44	12.5
25013	2	780726	087784	004.02	097.14	0598.3	04.17	04.36	11.6	001.82	023.15	0436.6	05.37	18.53	003.82	090.86	0579.3	04.46	04.52	12.0
25013	3	781017	090665	004.04	095.13	0639.3	05.53	05.12	11.1	001.84	023.38	0476.3	06.79	17.09	003.42	088.12	0607.0	05.58	05.25	11.7
25013	4	790125	095963	002.78	081.17	0587.0	04.70	03.91	12.3	001.17	015.75	0413.4	05.72	20.07	002.48	065.27	0569.4	04.92	04.12	13.0
25014	0	771221	056270	003.98	039.52	0521.5	06.94	05.62	14.9	002.03	007.71	0427.4	07.96	19.88	003.30	030.99	0501.9	06.47	05.25	15.8
25014	M	771228	056459	003.36	021.53	0534.9	07.23	05.37	15.3	001.86	005.05	0417.1	08.46	20.58	002.57	010.83	0510.4	06.74	05.46	16.5
25014	1	780420	059472	003.44	024.35	0543.3	06.51	06.23	15.0	001.79	005.40	0427.2	07.67	20.09	002.66	015.73	0523.7	05.95	05.70	15.9
25014	2	780712	061256	003.29	027.38	0520.1	06.02	05.82	15.5	001.95	008.19	0400.0	07.21	21.16	002.82	017.37	0505.6	05.55	05.56	16.3
25014	3	781004	065108	003.25	024.91	0539.0	06.79	05.29	15.1	001.78	007.05	0416.6	07.27	20.46	002.87	018.01	0518.3	06.18	05.73	15.9
25014	4	790103	066587	002.71	021.61	0525.3	06.88	05.39	15.5	001.52	005.51	0391.4	08.03	21.90	002.43	014.40	0512.9	06.82	05.35	16.3
25015	0	780104	082886	004.03	004.94	0269.7	04.28	03.58	30.6	001.02	001.48	0202.3	05.31	42.67	004.85	004.02	0253.3	03.85	03.19	32.2
25015	M	780124	083727	002.17	010.70	0266.2	04.20	03.53	30.6	000.97	004.58	0213.9	05.37	39.56	002.67	007.70	0256.2	03.79	03.20	32.0
25016	0	780113	035630	002.16	025.37	0532.0	03.49	02.93	15.3	000.48	003.37	0423.3	04.59	20.62	002.03	019.80	0505.5	03.47	02.92	16.3
25016	M	780213	036095	001.55	017.13	0635.0	03.50	02.33	13.3	000.48	003.09	0454.0	03.67	19.26	001.02	007.15	0577.5	02.36	02.49	14.9
25016	1	780426	037468	001.54	015.15	0550.1	02.89	02.79	15.3	000.65	003.40	0404.6	04.46	21.52	001.35	007.94	0518.6	02.55	02.56	16.5
25016	2	780725	039218	001.47	013.74	0589.0	02.96	02.96	14.4	000.57	003.27	0411.6	04.48	21.19	001.33	010.51	0542.0	02.71	02.71	15.7
25016	3	781016	039703	001.88	017.18	0574.0	04.02	03.72	14.6	000.69	003.64	0399.2	06.72	21.78	001.46	013.61	0530.5	03.98	03.68	15.9
25016	4	790126	040214	001.63	017.56	0550.0	03.89	03.28	15.2	000.64	003.38	0393.2	05.60	22.14	001.24	010.35	0514.4	03.56	03.07	16.5
25017	0	780118	070982	003.53	045.31	0661.4	07.32	06.32	11.9	001.93	008.77	0490.1	09.19	17.39	003.11	040.95	0640.0	07.69	06.62	12.4
25017	M	780201	071206	002.01	011.13	0734.3	05.99	05.17	11.7	001.45	004.34	0461.5	07.86	18.75	001.90	008.29	0721.7	05.95	05.15	11.9
25017	1	780515	074857	003.16	021.75	0788.3	05.86	05.55	10.7	001.61	007.20	0503.5	07.14	17.06	002.09	009.12	0749.5	06.14	05.76	11.5
25017	2	780807	076483	029.41	036.70	0900.0	03.35	03.42	09.4	015.37	009.92	0566.4	03.39	14.06	026.39	025.51	0856.7	03.32	03.40	09.0
25017	3	781122	077439	004.64	098.68	0623.9	03.84	03.17	11.2	002.23	019.59	0475.5	05.10	17.28	003.87	083.86	0609.3	03.68	03.05	11.7
25017	4	790213	078479	003.43	091.31	0714.0	03.16	02.80	10.2	001.13	017.06	0507.8	03.57	16.48	003.08	075.57	0680.1	03.10	02.72	10.9
25019	0	780123	057663	004.85	075.87	0593.2	04.78	04.05	12.2	001.55	021.77	0454.1	07.24	17.98	002.69	067.66	0575.4	04.62	03.87	12.8
25019	M	780208	058259	003.84	065.80	0605.2	05.37	04.56	12.3	001.77	020.62	0474.4	07.84	17.31	002.51	061.82	0581.5	04.98	04.35	12.9
25019	1	780515	060530	003.41	039.82	0650.3	05.40	05.01	12.3	002.00	019.18	0477.8	07.87	17.24	002.28	042.05	0611.3	05.06	04.69	12.9
25019	2	780804	063164	003.75	067.44	0645.1	04.02	03.84	11.6	001.92	028.36	0459.6	06.03	17.38	002.67	066.95	0603.5	03.53	03.51	12.3
25019	3	781113	065883	003.16	032.23	0679.4	04.93	03.91	12.0	001.53	015.66	0476.5	06.29	17.53	003.97	022.68	0654.9	05.10	04.04	12.6
25019	4	790206	070116	007.17	025.64	0680.5	04.24	03.81	11.9	001.75	016.25	0489.7	05.41	17.03	012.66	020.83	0633.4	04.14	03.79	12.5
25020	0	780126	061666	002.76	064.76	0322.7	03.93	03.37	20.5	001.60	045.16	0256.9	03.49	26.64	002.14	042.65	0306.9	04.13	03.58	23.2
25020	M	780207	061616	002.60	053.46	0325.2	03.61	03.23	21.2	001.55	046.58	0260.9	03.29	26.16	002.52	038.90	0307.1	03.67	03.39	23.5
25020	1	780505	064883	002.92	048.24	0365.0	04.40	03.75	19.7	001.96	041.50	0270.5	03.87	25.93	003.07	037.52	0340.0	03.98	03.60	21.7
25020	2	780802	067499	002.96	060.45	0297.9	03.56	03.72	22.0	001.47	045.39	0254.8	01.41	26.81	002.60	051.19	0294.9	03.85	03.98	23.1
25020	3	781106	070579	003.60	066.05	0312.3	03.81	03.21	20.7	001.50	041.65	0254.5	03.95	27.31	002.99	045.67	0311.2	04.65	03.77	22.5
25020	4	790206	072371	003.75	067.74	0310.3	03.36	02.97	20.7	001.96	040.80	0254.4	03.16	27.31	003.61	047.70	0311.4	03.53	03.15	22.2
25021	0	780130	047433	002.91	039.17	0285.9	03.71	03.08	24.9	001.56	010.88	0272.2	05.79	30.14	002.77	024.25	0270.2	03.83	03.18	27.9
25021	M	780215	047709	002.33	024.63	0281.9	03.62	03.28	27.0	001.36	005.79	0248.9	05.42	33.93	002.39	015.13	0268.8	03.81	03.42	29.5
25021	1	780427	048935	002.55	030.02	0285.3	03.33	03.19	26.0	001.33	008.14	0254.3	05.21	32.69	002.49	014.54	0265.3	03.40	03.23	29.9
25021	2	780718	050133	002.37	030.03	0280.3	03.32	03.33	25.5	001.23	008.22	0255.4	05.06	32.57	002.47	023.34	0287.8	03.75	03.94	26.6
25021	3	781010	051607	002.38	026.48	0290.5	03.83	03.50	25.1	001.16	006.14	0253.6	05.59	33.22	002.09	013.57	0276.8	03.79	03.45	29.1
25021	4	790123	052791	002.41	034.08	0246.4	02.85	02.39	28.8	001.26	007.18	0222.7	04.81	37.27	002.26	015.00	0238.1	03.00	02.55	32.9
25022	0	780207	071834	003.09	041.92	0663.4	03.76	03.58	12.0	001.66	006.55	0468.4	07.44	18.32	002.53	034.25	0614.5	03.70	03.49	13.1
25022	M	780310	072606	002.87	029.89	0627.2	05.01	04.30	13.0	001.63	004.79	0478.1	09.44	18.07	002.24	012.81	0603.6	04.85	04.17	14.0
25022	1	780519	074256	002.75	023.30	0609.2	04.36	03.96	13.5	001.64	005.06	0472.7	08.71	18.25	002.24	013.53	0578.3	04.14	03.76	14.6
25022	2	780814	076172	002.29	023.80	0589.1	02.63	02.56	14.0	000.93	005.00	0476.2	04.12	18.21	002.32	019.85	0563.3	02.75	02.70	14.7
25022	3	781031	078063	004.08	040.36	0580.8	04.01	03.32	13.5	002.02	007.43	0451.4	08.20	18.89	003.66	029.53	0557.0	04.08	03.38	14.4
25022	4	790201	080111	004.77	045.75	0546.7	03.63	02.88	14.0	002.01	010.65	0426.9	07.05	19.71	003.51	030.41	0532.9	03.79	03.04	14.3
25023	0	780213	045932	002.48	043.77	0770.9	03.77	03.13	10.4	000.88	007.45	0553.3	04.38	15.62	003.03	023.34	0710.3	03.73	03.07	11.7
25023	M	780307	046400	002.09	034.23	0757.8	03.45	03.07	10.8	000.76	007.54	0544.9	04.17	15.86	001.99	022.87	0708.5	03.25	02.88	11.4
25023	1	780518	047374	005.69	204.88	0797.6	02.54	02.26	07.8	000.91	012.53	0570.0	04.49	14.97	001.74	023.58	0750.2	03.46	03.06	11.1
25023	2	780807	050025	003.23	067.28	0795.5	02.89	03.17	09.7	001.12	013.51	0565.8	04.17	15.02	002.46	036.20	0794.7	03.69	03.78	10.3
25023	3	781030	050882	004.71	137.86	0704.1	02.00	01.70	09.5	001.68	032.18	0541.1	03.51	14.86	003.36	082.80	0672.3	02.02	01.72	10.9
25023	4	790130	051386	005.01	123.90	0654.3	02.02	01.54	10.3	001.45	025.14	0518.3	03.78	15.77	003.24	072.60	0639.3	02.12	01.71	11.5
25024	0	780214	077944	005.19	050.55	0477.2	07.15	06.10	15.5	002.15	007.81	0423.1	08.89	20.05	004.75	043.63	0438.1	06.97	05.92	17.0
25024	M	780516	081866	003.32	017.82	0497.4	07.74	05.97	15.5	001.96	004.52	0425.5	09.90	20.22	003.02	011.92	0464.8	05.33	06.74	17.9
25024	1	780711	083499	005.23	024.62	0545.8	03.84	03.58	14.6	002.85	004.03	0429.6	05.28	19.93	003.60	022.89	0508.3	04.37	04.09	15.9
25024	2	780929	085935	006.38	005.14	0511.8	05.65	05.18	14.0	002.27	010.09	0443.0	06.53	19.03	005.77	062.13	0467.9	05.25	05.23	15.1
25024	3	790103	089048	006.55	066.05	0479.5	05.03	03.96	14.7	002.64	010.18	0423.4	07.04	19.80	007.06	062.91	0450.9	05.13	04.05	15.5
25024	4	790321	090678	017.77	049.28	0522.2	03.80	03.23	13.5	018.98	008.34	0451.8	04.82	16.89	023.08	042.62	0492.8	04.12	03.57	14.0

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
25025	0	780228	069980	003.46	054.26	0353.5	02.93	02.71	19.7	001.25	014.14	0256.2	04.00	31.41	002.59	043.60	0339.2	02.89	02.51	21.3
25025	M	780306	070074	003.54	038.68	0342.3	02.21	01.90	21.4	001.56	023.71	0234.2	02.60	32.09	002.91	028.23	0329.3	02.13	01.82	23.1
25025	1	780522	072022	002.56	034.83	0382.0	02.46	02.11	19.9	001.55	021.26	0257.7	03.04	29.96	002.27	030.14	0366.7	02.31	02.01	21.0
25025	2	780818	074306	003.16	041.59	0366.7	01.92	01.80	20.1	001.63	022.15	0241.7	02.33	31.48	003.26	036.17	0361.6	01.73	01.71	20.6
25025	3	781108	076646	003.26	052.10	0376.4	01.95	01.73	18.9	001.49	024.38	0256.4	02.68	29.61	002.68	041.90	0352.2	01.83	01.60	20.7
25025	4	790206	078190	003.52	043.32	0342.2	02.62	02.36	21.0	002.02	022.92	0230.4	03.31	32.50	003.10	033.31	0328.0	02.53	02.31	22.7
25026	0	780413	134381	003.57	016.32	0435.3	02.81	02.57	18.8	000.86	002.82	0265.4	03.59	32.54	002.70	009.64	0420.6	02.48	02.27	19.9
25026	M	780524	137658	002.98	014.00	0347.5	05.18	04.51	23.4	000.91	002.46	0252.0	07.29	34.27	002.44	011.05	0330.6	05.51	04.91	24.3
25026	1	780718	139005	003.14	010.64	0315.8	04.80	04.67	25.9	000.96	002.35	0238.2	06.85	36.21	002.82	009.36	0300.5	04.83	04.65	27.3
25026	2	781020	147076	003.37	007.20	0330.9	05.01	04.59	25.1	001.08	001.94	0238.8	07.06	36.15	003.08	006.20	0310.0	05.09	04.72	26.3
25026	3	790108	150830	002.82	008.02	0324.5	05.77	04.53	25.6	001.07	002.32	0238.2	08.23	36.15	002.81	006.18	0309.9	05.59	04.50	26.9
25026	4	790330	154882	002.46	008.40	0330.8	05.30	04.54	25.2	000.96	002.25	0231.1	07.41	37.32	002.54	007.83	0312.1	05.47	04.68	26.6
25027	0	780307	056583	007.20	110.19	0490.4	01.99	01.79	12.9	003.83	095.36	0414.1	02.34	15.39	006.10	082.43	0477.3	02.37	02.15	14.1
25027	M	780421	057804	004.13	032.40	0540.4	04.72	04.47	14.7	001.58	006.42	0476.3	06.29	18.05	003.51	030.11	0516.3	03.92	03.71	15.4
25027	1	780615	059626	003.72	030.38	0526.1	03.89	03.49	15.1	001.36	005.62	0445.1	05.19	19.35	003.16	025.83	0504.3	03.41	03.05	15.9
25027	2	780922	061393	004.06	030.51	0558.5	03.59	03.29	14.3	001.30	005.61	0482.4	03.33	17.90	003.14	026.66	0543.3	03.73	03.41	14.3
25027	3	781207	064094	003.55	027.88	0518.9	04.40	03.52	15.5	001.25	005.16	0450.7	05.55	19.16	003.14	025.83	0480.7	03.53	02.96	16.6
25027	4	790228	065101	004.65	069.15	0483.3	02.48	02.10	14.6	003.12	059.64	0397.9	03.03	17.68	004.30	064.82	0465.3	01.99	01.70	15.2
25028	0	780320	042590	003.74	065.65	0610.2	04.54	03.83	12.2	001.82	010.47	0474.9	07.49	17.84	003.74	056.42	0591.2	05.43	04.67	12.8
25028	M	780627	044077	003.63	048.02	0599.6	04.15	03.94	12.3	001.52	009.39	0481.9	05.64	17.68	003.11	038.73	0572.4	04.21	04.03	13.7
25028	1	780914	046114	003.23	062.03	0715.3	03.64	03.51	10.8	001.71	012.73	0487.3	05.37	17.30	002.85	058.39	0719.9	03.53	03.51	10.8
25028	2	781212	047296	004.05	063.16	0605.3	04.35	03.63	12.4	001.55	010.43	0456.9	05.66	18.54	003.52	052.78	0567.4	04.37	03.63	13.4
25028	3	790306	048416	003.74	065.10	0663.2	03.60	03.42	11.4	001.82	013.51	0466.2	05.50	17.98	003.67	053.97	0594.0	03.75	03.53	12.8
25029	0	780314	072009	002.03	061.16	0398.4	03.50	02.91	17.7	001.23	023.16	0312.7	04.67	25.12	002.02	047.52	0383.9	03.73	03.13	19.0
25029	M	780601	077978	002.45	049.46	0315.2	04.54	03.77	22.1	001.72	027.19	0265.0	05.24	28.31	002.43	044.24	0302.3	04.26	03.70	23.3
25029	1	780629	080453	002.28	043.12	0313.2	04.27	04.19	22.8	001.64	024.97	0264.0	05.10	28.75	002.29	040.70	0295.0	03.95	03.84	24.2
25029	2	781115	085821	002.29	055.75	0409.8	01.88	01.53	17.6	001.51	019.46	0340.2	03.35	23.61	002.21	056.88	0373.4	01.58	01.28	18.8
25029	3	790228	091689	002.51	070.17	0411.1	01.51	01.31	16.8	001.44	021.23	0326.7	02.42	24.32	002.21	057.80	0382.3	01.37	01.18	18.4
25030	0	780316	050860	003.48	035.29	0346.7	04.06	03.52	21.5	001.95	010.34	0273.5	05.28	29.96	003.04	026.27	0341.5	04.20	03.65	22.6
25030	M	780329	051252	004.25	027.68	0370.0	03.61	03.23	20.8	001.86	011.06	0275.7	04.64	29.66	003.13	017.20	0362.6	03.57	03.29	22.1
25030	1	780626	055312	003.46	037.38	0340.8	03.13	02.97	21.6	001.89	014.19	0259.7	04.37	30.79	003.21	030.15	0335.1	03.30	03.08	22.5
25030	2	780921	059015	003.72	029.26	0392.2	03.62	03.45	19.7	001.87	013.55	0287.8	04.96	28.15	003.41	022.57	0361.1	03.52	03.33	21.7
25030	3	781214	062698	003.80	038.58	0363.6	04.15	03.71	20.3	002.02	014.64	0274.7	05.09	29.17	003.61	036.38	0346.8	03.80	03.38	21.3
25031	0	780322	082768	005.63	028.08	0631.6	06.16	05.51	12.8	001.88	004.26	0501.8	07.13	17.24	004.86	049.43	0626.7	06.42	05.80	12.3
25031	M	780404	082967	003.62	063.96	0842.1	03.69	03.30	09.3	000.86	016.64	0634.8	04.29	13.36	002.58	039.04	0786.7	03.57	03.31	10.3
25031	1	780615	084677	006.77	058.11	0605.8	05.99	05.56	12.3	001.75	007.90	0472.5	06.51	18.08	005.81	046.49	0551.9	05.98	05.51	13.7
25031	2	780911	088048	007.46	062.09	0603.9	05.42	05.19	12.2	002.05	009.33	0503.2	06.39	16.91	006.81	052.95	0566.7	05.74	05.55	13.2
25031	3	781205	089853	005.35	060.15	0658.5	07.52	06.35	11.5	001.80	009.13	0489.2	07.69	17.41	004.80	047.53	0583.3	06.65	05.62	13.1
25031	4	790222	091375	005.73	064.01	0606.3	05.65	04.86	12.2	002.02	010.16	0486.0	07.04	17.44	004.98	048.66	0562.0	05.46	04.69	13.5
25032	0	780323	058210	003.92	067.39	0505.9	02.62	02.41	14.2	001.21	014.59	0456.5	04.03	18.35	002.91	043.92	0503.0	02.79	02.48	15.2
25032	M	780414	058814	003.46	057.15	0603.3	04.16	03.73	12.6	001.20	015.75	0479.2	04.54	17.47	002.75	036.68	0579.7	04.12	03.71	13.7
25032	1	780621	059610	003.30	046.98	0605.7	05.00	04.71	12.8	001.63	013.03	0474.8	08.24	17.72	002.74	033.51	0596.8	05.01	04.73	13.4
25032	2	780918	062615	002.97	055.58	0701.9	04.99	04.52	11.1	001.26	014.86	0490.2	08.57	17.14	002.05	031.24	0661.1	04.76	04.26	12.3
25032	3	781213	067529	002.90	087.14	0701.5	02.92	02.41	10.5	001.10	032.58	0570.1	04.04	14.19	002.27	060.86	0668.5	03.16	02.62	11.5
25032	4	790302	068487	003.18	094.70	0652.1	02.41	02.03	10.9	001.05	028.75	0577.5	03.98	14.17	002.27	056.19	0677.8	03.12	02.66	11.4
25033	0	780412	056484	022.35	330.22	0624.2	01.89	01.63	07.3	004.01	143.10	0501.6	01.90	12.00	004.65	108.80	0752.9	03.53	03.09	09.4
25033	M	780511	057277	004.72	067.07	0848.4	04.22	03.57	09.2	001.47	015.97	0693.0	05.54	12.27	003.66	027.83	0845.6	04.51	03.92	09.3
25033	1	780705	058273	004.45	040.42	0803.1	03.74	03.52	10.1	000.85	003.25	0600.1	04.18	14.59	003.18	012.25	0780.7	03.84	03.56	10.9
25033	2	780925	061555	007.91	043.41	0772.8	05.00	05.19	10.2	001.39	005.48	0637.3	04.26	13.64	010.09	007.32	0775.1	04.09	04.17	10.8
25033	3	781227	064324	004.54	038.25	0805.9	04.12	03.34	09.7	000.84	004.11	0622.2	04.97	14.05	002.95	018.79	0787.4	04.05	03.28	10.7
25033	4	790323	067125	004.60	055.55	0794.2	03.98	03.40	09.3	001.08	007.56	0619.7	04.85	13.97	003.27	032.27	0766.9	03.75	03.20	10.7
25034	0	780403	026239	002.22	041.59	0676.1	02.56	02.24	11.8	014.57	011.64	0538.4	03.27	14.71	011.43	036.79	0615.8	02.67	02.32	12.4
25034	M	780524	026802	029.09	025.46	0644.8	03.36	03.01	11.4	019.50	009.59	0451.2	05.17	16.79	025.05	020.11	0590.8	03.24	02.83	12.6
25034	1	780705	027492	027.17	027.28	0621.2	02.66	02.69	11.8	019.32	008.62	0433.2	04.51	17.45	025.31	023.71	0583.1	01.03	01.07	12.6
25034	2	780926	028023	032.05	038.15	0645.4	03.09	03.17	11.0	019.81	010.57	0454.0	04.44	16.62	027.51	031.46	0591.9	02.30	02.97	12.1
25034	3	781218	028917	002.48	027.03	0688.1	03.06	02.58	12.0	001.40	006.83	0448.6	05.15	19.12	001.71	018.14	0655.2	02.92	02.45	12.8
25034	4	790301	029492	001.76	019.83	0637.0	02.78	02.30	13.2	001.48	007.12	0410.4	04.97	20.80	001.72	020.71	0586.6	02.67	02.21	14.2
25035	0	780407	067059	004.06	051.31	0625.6	03.49	03.55	12.3	001.73	017.13	0463.9	06.76	17.87	002.85	046.89	0620.4	03.73	03.33	12.6
25035	M	780607	069718	003.68	024.00	0726.1	03.69	03.55	11.4	001.38	012.62	0459.7	06.17	18.33	002.46	016.64	0680.2	03.72	03.35	12.4
25035	1	780823	071376	001.53	019.81	0805.6	03.14	03.29	10.5	001.13	012.33	0461.9	04.80	18.29	001.31	019.05	0780.0	03.09	03.21	10.8
25035	2	781116	073013	001.67	022.38	0823.4	03.57	03.21	10.3	001.24	002.46	0483.0	05.21	18.07	001.84	018.37	0798.8	03.58	03.21	10.6
25035	3	790213	075584	035.82	018.57	0669.9	04.64	03.95	10.9	021.96	010.31	0434.2	07.29	17.05	032.97	014.23	0669.3	04.96	04.26	11.1
25036	0	780413	057189	002.46	064.14	0714.7	03.56	03.26	10.8	000.92	020.24	0553.5	04.40	15.08	002.20	055.29	0684.3	03.31	03.03	11.4
25036	M	780519	057854	001.98	033.83	0738.6	03.10	02.89	11.1	000.97	018.97	0552.4	03.62	15.15	001.97	039.53	0692.1	02.87	02.74	11.6
25036	1	780711	059311	002.03	039.61	0710.3	03.17	03.02	11.4	000.85	020.37	0532.1	03.30	15.64	002.10	046.26	0659.3	02.97	02.82	12.0
25036	2	780929	062002	002.33	040.84	0724.1	03.49	03.33	11.1	001.10	024.51	0526.8	03.50	15.59	002.07	039.94	0697.3	03.32	03.13	11.5
25036	3	781219	063240	002.12	037.72	0691.3	03.35	02.73	11.7	000.88	019.35	0512.4	03.71	16.25	001.98	036.29	0667.5	03.24	02.64	12.1
25036	4	790307	064531	002.09	037.16	0688.3	03.30	02.92	11.8	000.97	018.19	0507.5	03.80	16.46	002.30	040.25	0682.7	04.04	03.51	11.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
25037	0	780417	040508	003.38	064.04	0445.2	06.81	06.24	15.9	001.71	028.22	0375.6	07.94	20.85	002.91	046.97	0422.5	06.44	05.89	17.5
25037	M	780706	041560	002.48	024.55	0428.8	06.13	06.75	18.7	001.30	014.66	0340.2	07.02	24.14	002.26	016.37	0409.2	05.56	06.12	20.0
25037	1	780928	044460	002.17	026.93	0404.0	06.42	06.04	19.6	001.07	012.48	0321.7	07.44	25.72	001.77	016.53	0386.3	06.04	05.59	21.2
25037	2	781221	046484	002.45	042.27	0413.9	06.55	05.72	19.2	001.15	017.50	0327.9	07.76	24.70	001.87	023.07	0411.9	06.87	06.02	19.5
25037	3	790308	048694	002.23	039.58	0366.7	05.17	04.55	20.3	001.10	017.45	0295.6	07.03	27.16	001.64	021.31	0349.0	05.03	04.40	22.8
25038	0	780420	134742	004.41	029.27	0660.7	04.55	04.29	12.3	002.04	004.94	0474.2	08.93	18.15	003.80	009.55	0629.0	04.93	04.59	13.5
25038	M	780515	135245	003.23	038.12	0673.0	04.18	03.85	11.9	001.43	005.31	0480.8	08.41	17.97	001.81	008.48	0647.7	04.27	03.95	13.3
25038	1	780726	138307	002.54	022.64	0714.8	04.30	04.39	11.7	001.90	006.74	0526.6	09.61	16.32	002.20	012.36	0701.9	05.35	05.31	12.1
25038	2	781018	140978	002.87	034.86	0704.3	04.83	04.43	11.5	002.02	009.69	0500.3	09.76	16.99	002.33	016.95	0680.1	05.07	04.55	12.4
25038	3	790115	142993	003.54	056.22	0664.6	04.63	03.85	11.6	001.93	011.35	0448.6	08.36	18.77	002.48	026.79	0634.2	04.70	03.90	12.9
25038	4	790329	145073	005.04	081.92	0593.0	04.55	03.93	12.0	002.81	018.23	0467.7	08.20	17.55	004.05	060.97	0569.6	04.54	04.03	13.0
25039	0	780501	070390	003.56	066.47	0791.2	05.29	04.43	09.8	000.85	013.47	0565.3	05.73	15.05	003.29	074.67	0717.1	03.96	03.36	10.5
25039	M	780525	070953	001.25	043.99	1030.5	04.16	03.58	08.0	000.17	004.52	0713.9	04.72	12.29	001.38	049.47	0952.7	03.84	03.44	08.5
25039	1	780911	078157	003.06	072.31	0795.2	04.34	04.07	09.7	000.76	016.12	0572.8	05.42	14.77	002.94	078.76	0756.3	03.47	03.26	09.9
25039	2	781128	081168	002.59	062.93	0777.1	04.56	04.07	10.0	000.81	015.66	0575.5	05.70	14.71	002.71	076.80	0740.5	03.59	03.19	10.2
25039	3	790212	082295	002.77	074.96	0750.9	03.49	03.18	10.1	000.80	015.95	0520.2	04.64	16.19	002.75	082.97	0713.4	03.05	02.83	10.4
25040	0	780516	093715	004.39	079.92	0551.3	03.87	03.43	12.8	001.75	019.49	0452.0	05.08	18.17	004.21	076.49	0519.4	03.43	03.04	13.5
25040	M	780519	093835	003.45	057.19	0542.9	03.26	02.93	13.8	001.81	025.94	0421.7	04.29	18.94	003.41	061.86	0499.7	02.51	02.35	14.5
25040	1	780808	096298	004.21	076.06	0515.6	02.39	02.52	13.7	002.10	036.36	0397.8	03.45	19.21	004.37	081.27	0484.6	02.11	02.32	14.1
25040	2	781025	098576	004.03	070.26	0531.6	03.73	03.10	13.5	002.24	028.71	0427.9	04.99	18.47	003.57	063.29	0503.1	03.55	03.01	14.4
25040	3	790109	101956	004.22	080.47	0481.6	02.96	02.37	14.3	002.24	036.11	0385.2	03.70	19.75	004.37	091.44	0451.6	02.41	01.93	14.5
25040	4	790314	104890	004.95	105.71	0509.6	02.14	01.91	12.8	002.27	052.84	0403.2	01.31	17.97	004.57	109.65	0477.8	01.39	01.76	13.3
35001	0	771008	055248	003.49	063.33	0657.5	04.32	04.13	11.6	001.65	012.41	0476.9	05.89	17.68	002.64	040.14	0635.1	04.20	04.09	12.5
35001	M	771108	059126	003.52	061.93	0647.4	04.50	03.79	11.7	001.55	014.69	0497.9	04.87	16.86	002.66	040.02	0625.2	04.57	03.85	12.7
35001	1	780317	061836	003.75	061.59	0676.0	04.58	04.00	11.3	001.50	017.42	0523.1	04.38	15.97	002.43	043.62	0650.8	03.64	03.01	12.2
35001	2	780525	063804	003.99	067.80	0617.6	04.92	04.38	12.0	001.49	017.13	0537.0	04.97	15.59	002.50	042.30	0676.6	05.07	04.41	11.8
35002	0	771101	055073	003.50	017.64	0663.8	04.37	03.87	12.6	001.26	003.68	0463.7	05.53	18.73	003.83	006.18	0591.1	03.55	03.18	14.4
35002	M	780201	056303	002.75	021.32	0635.7	04.35	03.90	13.1	001.55	009.93	0443.2	06.56	19.13	001.65	011.57	0621.2	04.33	03.90	13.7
35002	1	780505	057776	001.80	015.84	0644.9	04.46	03.83	13.1	001.26	005.94	0458.4	07.00	18.80	001.20	006.49	0606.3	04.49	03.88	14.2
35002	2	780801	059460	001.87	014.25	0638.6	04.00	03.86	13.3	001.18	005.45	0442.2	06.37	19.51	001.19	007.10	0601.5	03.99	03.77	14.3
35002	3	781031	061906	001.97	016.03	0627.0	03.60	03.10	13.5	001.24	006.66	0442.6	07.82	19.40	001.23	006.91	0601.5	05.02	04.30	14.3
35002	4	790130	062911	002.05	019.73	0594.7	03.82	03.04	14.0	001.56	016.63	0425.8	07.97	19.41	001.29	008.35	0581.2	04.92	03.93	14.8
35003	0	771022	042924	002.13	028.82	0441.3	05.57	05.23	13.0	001.19	005.63	0345.9	08.49	24.73	001.58	012.16	0448.7	05.12	04.87	18.7
35003	M	771130	043456	001.98	018.83	0467.9	06.32	05.43	17.5	001.20	005.64	0374.4	09.74	22.91	001.66	011.19	0449.7	05.50	04.70	18.7
35003	1	780322	045259	002.06	016.33	0470.4	06.37	05.64	17.6	001.40	007.52	0367.8	09.76	23.09	001.76	014.38	0437.9	05.00	04.45	19.0
35003	2	780619	046537	002.01	010.88	0464.5	05.74	05.39	13.2	001.16	004.41	0356.8	09.96	24.14	002.76	013.54	0428.7	04.73	04.96	19.3
35003	3	780914	048469	002.91	029.50	0490.1	07.36	07.15	16.3	001.47	011.93	0376.8	09.72	22.16	002.74	021.62	0473.3	06.81	06.62	17.1
35003	4	781218	049743	002.86	039.55	0425.9	05.29	04.41	17.8	001.57	017.53	0333.6	07.65	24.20	002.66	030.01	0412.0	04.92	04.12	18.9
35004	0	771029	084320	035.16	085.02	0643.8	04.32	03.99	10.0	020.14	010.00	0490.6	07.01	15.55	030.55	061.45	0612.1	04.24	03.92	11.0
35004	M	771207	084663	003.01	035.90	0678.7	06.56	05.44	11.9	001.24	009.88	0482.9	08.22	17.65	002.27	018.25	0645.9	06.63	05.51	13.0
35004	1	780323	087330	003.02	040.97	0744.6	03.93	03.46	10.8	000.69	009.00	0543.3	04.84	15.85	001.84	026.30	0696.3	03.71	03.26	11.9
35004	2	780615	088571	040.28	177.80	0575.4	01.21	01.06	09.0	032.50	214.24	0358.1	00.65	11.12	030.95	028.20	0649.1	04.59	04.07	11.2
35004	3	780915	089720	033.76	061.54	0672.7	04.35	04.26	10.1	021.28	012.08	0533.7	06.03	14.30	030.54	037.95	0643.8	04.71	04.47	11.0
35004	4	781213	100818	035.58	037.26	0635.9	06.34	05.10	11.0	020.47	015.28	0465.6	06.41	15.99	032.73	023.78	0599.6	06.33	05.11	11.9
35005	0	771029	025465	002.75	043.93	0347.8	04.07	03.77	20.8	001.77	021.54	0284.1	04.97	27.41	002.31	028.66	0330.4	03.88	03.60	23.1
35005	M	771110	025527	002.41	027.51	0362.5	04.77	04.47	21.5	001.68	017.35	0303.1	05.60	26.42	002.17	018.09	0340.4	04.30	03.99	23.6
35005	1	780320	026667	002.88	050.35	0347.1	03.80	03.23	20.4	001.91	027.99	0285.9	04.75	26.40	002.71	040.09	0330.9	03.54	03.08	22.0
35005	2	780530	027551	002.73	044.68	0362.7	04.43	03.81	20.1	001.81	022.28	0310.3	05.74	25.26	002.61	030.26	0353.1	04.59	03.97	21.6
35005	3	780823	029010	002.95	042.70	0337.6	03.38	03.32	21.4	002.03	025.67	0286.8	04.51	26.58	002.58	031.44	0336.6	03.57	03.55	22.5
35005	4	781121	029774	003.03	048.72	0339.2	03.73	03.09	20.8	002.36	027.42	0282.9	04.47	26.67	002.68	035.90	0328.7	03.79	03.12	22.5
35006	0	771104	090957	002.83	067.44	0604.6	04.12	03.42	12.3	001.23	013.93	0492.8	05.23	17.10	002.14	051.35	0598.4	04.22	03.49	12.9
35006	M	780222	094275	002.42	033.64	0634.5	03.74	03.50	12.9	001.24	014.71	0464.5	04.31	18.04	021.85	023.67	0579.4	04.44	04.21	12.9
35006	1	780501	095942	016.76	033.09	0603.9	04.07	03.55	12.5	002.08	015.23	0480.6	04.49	17.35	015.39	024.13	0555.7	03.77	03.30	13.8
35006	2	780818	099651	002.66	052.67	0649.7	03.49	03.23	12.0	001.33	027.00	0460.8	03.85	17.48	002.13	044.83	0610.8	03.37	03.21	12.8
35006	3	781114	102515	004.35	048.79	0729.2	05.93	04.77	10.8	001.21	016.79	0518.3	06.05	16.17	002.52	034.16	0702.8	06.30	05.07	11.6
35006	4	790208	105078	002.56	042.48	0601.8	03.83	03.52	13.1	001.67	025.79	0432.0	04.00	18.56	002.25	039.93	0605.0	03.73	03.38	13.1
35007	0	771103	024002	003.28	046.38	0349.6	02.08	01.77	20.5	002.09	032.29	0269.9	02.48	27.10	002.74	041.69	0323.8	02.10	01.82	22.2
35007	M	771128	024181	003.16	034.06	0361.8	02.73	02.48	20.9	002.10	023.89	0292.7	03.15	26.32	002.62	018.73	0337.2	02.83	02.57	23.6
35007	1	780325	025505	002.86	031.74	0332.9	02.59	02.30	22.6	002.04	022.27	0275.8	03.00	27.95	002.76	025.45	0337.1	02.82	02.49	22.9
35007	2	780613	026339	002.48	028.07	0297.2	02.22	02.37	25.4	001.67	019.57	0241.4	02.46	31.96	002.35	019.39	0277.3	02.12	01.98	28.1
35007	3	780918	027675	003.14	039.51	0370.6	02.94	02.66	20.0	002.17	027.74	0307.9	03.50	24.75	004.63	033.33	0354.3	02.91	02.60	21.0
35007	4	781218	028320	003.81	049.17	0370.7	02.76	02.33	19.3	002.62	028.58	0284.7	03.47	26.24	003.29	030.41	0370.7	03.57	03.01	20.6
35008	0	771110	044949	001.42	029.72	0472.6	02.65	02.29	15.9	001.41	006.26	0368.6	03.36	23.16	002.70	025.13	0444.6	02.50	02.20	18.0
35008	M	771208	045271	003.38	062.97	0624.6	01.71	01.42	12.1	001.39	010.59	0504.7	02.59	16.90	002.40	038.66	0580.1	01.74	01.41	13.5
35008	1	780424	048176	004.33	046.14	0485.1	03.21	02.77	15.4	002.55	026.66	0415.5	04.20	19.05	003.63	035.99	0463.4	02.94	02.55	16.6

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
35009	0	771130	042826	002.30	035.09	0791.6	02.69	02.30	10.4	000.94	013.73	0537.9	02.21	15.77	001.90	015.46	0823.4	02.72	02.34	10.3
35010	0	771121	042114	005.50	041.69	0729.1	03.27	02.67	10.9	002.03	022.18	0498.4	05.24	16.43	006.22	020.68	0660.7	04.38	03.57	12.4
35011	0	771227	068997	003.89	063.49	0493.7	03.87	03.19	14.6	002.35	014.47	0406.8	06.95	20.34	003.76	056.91	0513.3	04.32	03.57	14.4
35011	M	780202	069366	002.35	020.09	0554.8	03.65	03.19	14.9	001.49	010.53	0399.1	05.43	21.10	001.77	010.49	0534.0	03.74	03.25	15.9
35011	1	780511	071432	002.90	024.31	0613.7	04.25	03.87	13.4	002.10	014.00	0443.2	06.22	18.79	002.71	016.14	0582.8	04.24	03.92	14.3
35011	2	780804	073425	003.14	027.50	0625.8	03.63	03.51	13.1	001.98	016.68	0454.0	05.68	18.23	002.64	019.83	0565.5	03.36	03.47	14.6
35012	0	771228	053970	004.38	049.64	0284.9	02.89	02.38	23.5	000.91	007.24	0226.9	04.08	36.77	003.57	044.78	0273.6	02.53	02.06	24.9
35012	M	780207	055002	003.33	030.25	0303.5	02.93	02.77	24.5	000.78	004.66	0237.4	04.34	35.88	002.89	022.26	0299.8	02.57	02.52	25.7
35012	1	780426	057559	003.05	031.06	0305.4	03.01	02.82	24.4	000.81	005.28	0238.5	04.42	35.57	002.62	026.02	0298.5	02.70	02.57	25.5
35012	2	780717	059825	002.84	025.96	0325.3	03.05	02.92	23.6	000.78	004.82	0244.4	04.35	34.85	002.38	022.59	0315.0	02.77	02.72	24.7
35012	3	781013	063007	003.97	044.26	0313.6	02.55	02.24	22.4	000.81	007.69	0245.9	03.76	34.04	003.12	037.89	0307.4	02.39	02.13	23.5
35012	4	790129	065958	003.24	044.72	0308.6	02.13	01.71	22.8	000.91	007.50	0262.5	02.83	32.00	002.68	036.78	0302.5	02.03	01.62	24.0
35014	0	771230	036933	005.07	074.85	0505.8	02.20	01.87	13.9	002.17	016.75	0401.3	03.71	20.41	004.47	066.83	0501.4	02.11	01.81	14.2
35015	0	780113	054822	002.40	047.05	0349.4	01.37	01.19	20.6	000.43	008.28	0281.4	00.70	29.98	001.76	033.21	0357.4	01.47	01.51	21.3
35015	M	780128	055076	002.12	038.53	0341.3	02.26	01.95	21.7	000.75	009.77	0253.7	03.15	32.67	001.75	028.15	0337.2	02.40	02.06	22.9
35015	1	780426	056831	002.65	046.85	0344.0	02.66	02.41	20.8	001.04	013.51	0267.0	03.60	30.42	002.47	044.96	0321.0	02.49	02.26	22.2
35015	2	780721	058219	003.13	053.33	0328.4	01.91	01.79	21.0	001.15	016.14	0263.6	03.18	30.31	002.62	050.21	0317.3	01.92	01.80	21.9
35016	0	780121	068204	002.45	049.34	0908.1	02.29	02.07	08.9	000.57	007.00	0647.7	02.47	13.43	002.52	043.03	0872.2	02.23	01.97	09.3
35016	M	780209	068906	002.60	037.13	0894.8	02.30	02.38	09.2	000.52	029.17	0622.9	02.32	13.23	002.17	029.95	0852.2	02.31	02.09	09.7
35016	1	780512	070739	001.98	035.13	0931.0	02.29	01.97	08.9	000.41	004.46	0645.7	02.27	13.56	002.04	027.64	0866.1	02.17	01.87	09.6
35017	0	780123	086190	005.35	124.30	0633.6	03.48	02.92	10.5	001.59	024.87	0474.4	07.04	17.10	003.85	117.34	0621.0	03.72	03.11	10.8
35017	M	780201	086240	002.89	048.42	0670.9	03.75	03.20	11.7	001.19	013.40	0474.3	06.96	17.77	002.13	036.47	0698.0	04.06	03.47	11.5
35017	1	780508	088675	004.15	093.32	0691.3	04.13	03.59	10.4	001.86	031.87	0484.0	07.58	16.42	003.54	095.01	0628.0	04.00	03.55	11.2
35017	2	780728	090809	003.52	039.19	0663.9	04.48	04.37	12.0	001.70	019.44	0424.0	07.46	19.28	003.23	034.73	0634.9	05.05	04.95	12.6
35017	3	781025	094612	003.07	031.78	0709.0	05.77	04.71	11.5	001.76	018.09	0494.5	09.46	16.78	002.93	034.64	0659.0	05.90	04.82	12.2
35017	4	790124	095992	003.58	018.31	0649.4	07.48	06.42	12.9	001.91	012.95	0461.1	09.24	18.19	003.05	014.70	0625.1	08.39	07.16	13.4
35018	0	780124	078095	002.31	061.60	0379.6	03.12	02.62	18.3	000.93	015.61	0319.8	04.01	25.54	001.71	047.42	0351.2	02.76	02.31	20.5
35018	M	780203	078316	002.30	062.18	0371.6	02.93	02.58	18.5	001.34	017.77	0313.7	03.68	25.71	001.79	051.13	0344.5	02.56	02.36	20.5
35018	1	780505	080567	002.23	059.63	0378.0	02.86	02.43	18.5	001.06	017.16	0324.2	04.24	25.01	001.79	048.53	0357.0	02.71	02.29	20.2
35018	2	780811	083475	002.35	062.06	0341.0	02.09	02.05	19.9	001.18	021.22	0294.1	03.18	26.78	002.03	054.43	0310.6	01.71	01.64	22.0
35018	3	781214	084780	002.72	051.97	0353.4	02.97	02.51	23.0	001.20	017.41	0292.0	04.08	27.44	002.61	036.95	0327.6	03.03	02.56	22.5
35018	4	790330	085116	002.62	053.36	0362.1	03.31	02.86	19.5	000.95	016.78	0297.2	04.10	27.15	002.51	046.53	0348.8	03.22	02.80	20.6
35019	0	780131	057258	004.69	061.83	0282.9	02.76	02.39	22.5	001.71	017.58	0261.0	04.92	30.16	003.98	056.36	0288.5	02.98	02.60	22.7
35020	0	780221	052004	001.76	017.89	0472.6	05.33	05.20	17.5	000.60	002.96	0373.4	05.05	23.34	001.56	009.09	0460.8	04.59	04.41	18.4
35021	0	780222	054950	004.64	030.79	0345.8	05.87	05.18	21.7	001.55	007.32	0278.2	07.94	30.10	004.53	023.11	0334.6	05.93	05.22	23.0
35022	0	780301	062294	003.08	064.81	0702.1	02.47	02.13	10.9	001.19	025.06	0516.7	04.64	15.84	001.92	043.39	0664.7	02.35	02.01	12.0
35022	M	780410	063415	001.67	035.35	0830.0	02.62	02.32	10.0	000.95	016.17	0556.1	04.57	15.17	001.08	020.62	0797.1	02.55	02.25	13.5
35022	1	780912	067784	002.32	028.55	0731.8	03.70	03.49	11.3	001.42	013.86	0540.4	06.11	15.65	002.28	018.79	0693.5	03.40	03.20	12.1
35022	2	781207	069452	002.18	027.99	0696.8	02.52	02.38	11.9	000.67	010.92	0550.2	03.63	15.57	001.90	014.31	0669.9	02.53	02.19	12.7
35022	3	790226	070516	002.46	033.73	0712.0	02.54	02.26	11.5	001.01	013.16	0555.7	03.52	15.30	002.05	017.74	0659.9	02.53	02.21	12.7
35023	0	780323	039843	006.23	111.20	0364.3	01.48	01.33	15.9	002.19	046.95	0238.3	02.59	27.79	005.26	097.25	0339.5	01.45	01.31	17.4
35023	M	780404	040036	005.57	070.61	0389.2	02.02	01.73	17.1	002.38	035.77	0245.1	03.35	28.80	004.31	059.37	0377.8	02.14	01.87	18.2
35023	1	780616	041882	004.87	066.60	0358.8	01.69	01.48	18.5	001.99	037.38	0221.6	02.58	30.93	004.19	058.24	0360.5	01.78	01.58	19.0
35023	2	780912	044332	004.81	076.65	0365.0	01.63	01.53	17.7	001.88	041.99	0226.0	02.67	29.76	004.76	068.85	0347.0	01.53	01.44	18.8
35023	3	781205	046304	004.57	070.79	0344.0	01.69	01.44	18.9	002.05	037.73	0226.7	03.19	30.32	004.28	058.90	0337.0	01.88	01.59	20.3
35023	4	790221	048186	004.90	079.59	0343.4	01.48	01.27	18.3	002.38	042.22	0219.9	02.63	30.28	004.55	068.93	0333.4	01.49	01.28	19.4
35024	0	780323	051295	002.86	040.38	0330.6	04.73	04.17	22.0	001.93	025.18	0271.6	05.27	27.95	003.05	038.25	0313.8	04.44	03.89	23.1
35025	0	780407	048933	003.95	120.03	0582.5	03.55	03.15	11.3	001.33	046.03	0441.9	03.52	17.11	006.24	159.59	0490.3	02.72	02.39	11.6
35025	M	780426	049479	001.99	043.72	0623.7	03.65	03.43	12.7	000.72	010.15	0482.0	04.55	17.73	001.53	031.32	0579.2	03.58	03.44	14.0
35025	1	780710	051442	002.07	040.59	0578.8	03.78	03.53	13.7	000.77	010.42	0439.0	04.49	19.37	001.55	029.28	0523.8	03.59	03.37	15.6
35025	2	780929	053814	002.29	051.45	0599.6	03.86	03.54	12.9	000.74	016.96	0451.8	04.29	18.45	001.94	047.65	0548.1	03.43	03.31	14.1
35025	3	781219	056513	002.15	040.18	0583.9	04.13	03.38	13.6	000.79	009.57	0487.2	06.51	17.57	001.92	032.53	0571.2	05.41	04.43	14.1
35025	4	790208	058301	015.63	039.36	0528.3	04.93	04.36	13.9	017.55	011.02	0418.7	05.59	18.04	022.88	031.09	0477.9	05.09	04.44	14.8
35026	0	780331	053831	002.16	030.81	0383.9	01.53	01.29	23.2	000.95	005.39	0308.2	02.04	27.74	002.60	029.86	0378.0	01.52	01.29	20.4
35026	M	780413	053875	002.59	018.71	0370.4	02.65	02.39	21.7	000.87	004.91	0270.8	03.65	31.52	002.21	014.28	0354.6	02.38	02.16	23.0
35026	1	780628	058199	002.56	012.79	0367.8	01.96	02.27	22.4	000.60	003.41	0271.2	02.77	31.85	002.64	008.87	0350.7	01.86	02.18	23.7
35026	2	780918	062872	002.81	023.86	0388.2	02.15	01.97	20.4	000.60	004.78	0303.1	03.16	28.38	002.87	018.45	0366.0	01.78	01.80	21.9
35026	3	781212	066572	002.60	023.30	0376.3	02.01	01.59	21.1	000.62	004.13	0272.8	03.25	31.53	002.17	015.71	0366.7	01.96	01.63	22.2
35026	4	790302	069663	003.40	030.23	0395.2	01.64	01.36	19.6	000.78	005.90	0276.3	02.46	30.79	003.17	024.27	0366.5	01.43	01.19	21.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
35027	0	780407	037676	003.28	070.81	0616.8	03.72	03.25	12.0	001.95	021.03	0456.8	06.01	17.88	002.67	056.84	0572.1	03.32	02.86	13.2
35027	M	780421	038019	002.44	029.86	0659.2	04.21	03.81	12.4	002.36	021.67	0470.0	06.09	17.37	001.81	017.05	0634.8	03.83	03.51	13.2
35027	1	780629	039441	002.87	049.05	0599.9	03.36	03.35	12.9	001.99	019.44	0439.4	05.91	18.62	002.42	035.35	0601.2	03.71	03.71	13.3
35027	2	780925	040785	004.51	093.77	0602.3	03.18	03.16	11.6	002.66	032.07	0443.4	05.22	17.66	003.71	072.45	0582.6	03.00	03.16	12.5
35027	3	781218	042534	003.42	054.41	0609.9	03.64	03.30	12.6	002.36	024.97	0432.0	05.87	18.52	002.73	041.66	0586.2	03.51	02.89	13.4
35027	4	790305	043880	003.36	045.29	0575.4	03.09	03.31	13.5	002.51	025.27	0443.5	05.67	18.05	002.80	031.52	0559.2	03.03	02.95	14.3
35028	0	780406	052014	003.44	104.12	0827.3	03.14	02.82	08.9	000.71	011.21	0607.0	03.98	14.15	003.00	104.86	0799.6	02.83	02.55	09.1
35028	M	780421	052146	002.11	030.59	0835.8	03.12	03.05	10.0	000.76	005.99	0629.8	03.72	13.82	002.02	033.74	0791.2	02.75	02.67	10.6
35028	1	780711	054091	002.56	037.74	0782.0	03.55	03.36	10.4	000.91	006.87	0588.3	03.67	14.73	002.44	039.03	0777.1	03.01	02.85	10.4
35028	2	781013	058333	001.98	025.71	0887.4	04.10	03.37	09.5	000.56	004.49	0600.2	04.54	14.56	001.45	011.49	0865.5	04.74	03.87	09.3
35028	3	790117	059736	001.85	022.79	0806.8	03.22	02.69	10.5	000.50	004.06	0562.4	03.08	15.55	001.36	013.00	0785.5	03.33	02.78	10.9
35028	4	790329	061098	002.06	035.84	0868.2	03.67	03.15	09.5	000.61	006.76	0618.1	04.39	14.06	002.04	036.92	0828.6	03.87	03.32	09.9
35029	0	780410	068970	003.90	062.30	0356.9	03.71	03.19	19.0	001.90	020.61	0285.0	05.11	27.42	003.82	054.33	0335.2	03.80	03.27	20.4
35029	M	780425	069093	003.82	044.53	0380.9	04.16	03.74	19.2	002.01	016.48	0301.7	05.76	26.55	004.16	035.98	0353.5	04.16	03.75	20.3
35029	1	780705	070227	003.63	045.02	0379.0	03.93	03.94	19.2	001.87	019.48	0297.2	05.40	26.58	003.06	038.57	0344.7	03.80	03.81	21.3
35029	2	780925	071433	003.54	048.88	0377.4	03.57	03.53	19.1	002.15	024.93	0296.5	04.93	25.89	003.22	039.57	0349.4	03.43	03.41	21.3
35029	3	781212	072561	003.93	050.23	0365.1	04.58	03.79	19.4	001.87	014.23	0281.7	06.14	28.60	003.67	046.59	0337.5	04.25	03.48	20.9
35029	4	790227	073493	003.88	063.44	0350.1	03.04	02.50	19.2	002.55	027.18	0270.3	04.54	27.61	003.89	049.84	0319.9	03.14	02.69	21.6
35030	0	780417	062909	010.67	020.09	0745.1	04.58	04.19	10.9	002.58	007.43	0515.0	07.46	16.58	013.26	012.13	0671.6	04.66	04.28	12.1
35030	M	780512	063773	003.04	022.73	0664.6	03.48	03.30	12.5	002.37	014.49	0474.4	05.75	17.61	002.53	012.50	0617.3	03.15	02.86	13.7
35030	1	780821	065868	003.00	023.39	0667.5	03.01	02.91	12.4	002.40	017.05	0455.9	04.77	18.09	002.87	017.61	0612.9	02.84	02.76	13.6
35030	2	781113	068844	003.84	027.29	0608.0	04.70	03.79	13.4	002.11	014.74	0476.2	05.62	17.53	002.71	015.52	0603.2	04.11	03.32	13.7
35030	3	790206	071495	002.87	023.99	0645.4	02.91	02.70	12.8	002.04	014.76	0456.2	04.56	18.25	002.48	018.09	0596.7	02.75	02.55	14.0
35030	4	790402	073374	004.64	016.81	0672.1	03.32	02.36	12.4	001.66	008.18	0477.0	04.86	17.91	005.77	008.68	0619.9	02.91	02.50	13.6
35031	0	780417	041153	002.95	052.07	0267.5	02.10	02.01	24.7	000.75	010.04	0219.1	03.63	37.38	002.47	044.27	0260.9	02.01	01.93	26.2
35031	M	780503	041445	002.85	031.25	0254.3	02.51	02.11	23.4	000.38	008.38	0211.0	04.30	39.07	002.49	024.19	0248.4	02.36	01.97	30.1
35031	1	780803	045170	003.27	037.84	0312.9	02.66	02.84	23.2	001.12	016.62	0266.3	04.72	29.96	002.94	036.76	0305.8	02.37	02.61	23.7
35031	2	781025	047230	003.36	037.64	0309.4	03.17	02.54	23.4	001.06	012.57	0238.4	04.84	33.91	002.70	029.07	0296.4	02.93	02.43	25.2
35031	3	790117	048124	003.24	042.48	0319.0	03.06	02.50	22.4	000.39	011.49	0239.6	04.74	34.01	002.57	030.91	0326.2	03.24	02.63	23.1
35031	4	790330	049590	002.58	040.61	0312.8	02.60	02.24	23.0	000.83	012.91	0234.9	03.90	34.39	002.57	032.42	0290.7	02.14	01.84	25.3
35032	0	780421	055493	001.21	059.94	0846.2	02.62	02.36	09.4	000.25	017.21	0636.0	02.32	13.36	001.26	082.00	0808.5	01.72	01.56	09.4
35032	M	780523	056722	000.79	040.68	0881.2	02.96	02.49	09.4	000.16	011.78	0647.9	02.56	13.30	000.83	038.60	0854.8	02.26	02.75	09.6
35032	1	780719	058323	002.88	120.73	1088.6	02.09	02.31	06.9	000.52	045.37	0797.1	01.41	10.19	002.79	153.80	1000.4	01.53	01.67	07.0
35032	2	781011	059902	001.79	084.33	0794.1	02.66	02.37	09.5	000.31	017.39	0578.4	03.16	14.62	001.83	070.03	0744.7	02.83	02.55	10.3
35032	3	781226	061612	002.14	099.58	0796.1	02.52	02.12	09.2	000.39	022.77	0604.7	02.89	13.82	002.19	109.21	0771.7	02.08	01.76	09.3
35032	4	790315	063662	002.12	097.54	0813.0	02.37	02.16	09.1	000.25	025.44	0608.7	02.31	13.65	002.01	113.54	0785.4	01.69	01.54	09.1
35033	0	780420	040526	001.73	047.39	0692.2	03.49	03.11	09.1	000.46	004.84	0623.8	04.11	14.01	001.40	047.77	0826.1	03.52	03.13	09.7
35033	M	780421	040567	001.71	055.23	0896.0	03.62	03.27	09.3	000.45	004.25	0629.4	03.85	13.91	001.37	041.32	0826.3	03.52	03.28	09.3
35033	1	780713	041548	001.91	051.10	0816.0	02.77	02.96	09.8	000.52	005.47	0553.6	03.01	15.73	001.78	053.25	0775.3	02.79	02.94	10.2
35033	2	781006	042530	002.09	050.26	0982.6	04.81	04.12	08.3	000.60	007.25	0680.7	05.68	12.78	002.05	059.44	0846.7	04.24	03.72	09.3
35033	3	790119	043585	001.68	046.29	0829.4	03.22	02.65	09.8	000.46	004.51	0572.8	03.68	15.25	001.55	047.24	0762.5	03.09	02.64	10.5
35033	4	790328	044278	001.97	058.24	0829.3	02.74	02.44	09.6	000.73	005.68	0591.4	03.10	14.72	002.35	053.74	0779.7	02.58	02.33	10.1
35034	0	780508	056004	003.77	047.90	0351.7	02.41	02.11	20.2	000.83	009.11	0289.2	03.58	28.96	003.56	046.07	0347.0	02.33	02.11	20.5
35034	M	780523	056944	003.34	028.64	0359.4	02.58	02.21	21.4	000.65	006.21	0275.1	03.57	30.91	003.15	023.02	0344.5	02.49	02.17	22.7
35034	1	780727	059349	003.01	025.41	0356.2	02.60	02.56	21.9	000.78	005.46	0263.6	03.70	32.29	002.68	019.81	0338.7	02.56	02.53	23.4
35034	2	781023	062231	004.81	057.23	0358.5	02.63	02.22	19.1	000.94	009.28	0285.2	03.77	29.29	003.14	047.71	0347.8	02.68	02.24	20.5
35034	3	790104	064971	003.46	048.31	0387.0	02.65	02.39	18.7	000.64	006.96	0274.4	03.44	30.86	002.72	040.98	0381.0	02.58	02.03	19.5
35034	4	790329	066629	004.26	060.15	0330.3	02.25	01.94	23.2	001.21	010.47	0274.5	04.15	30.08	003.38	049.69	0335.7	02.51	02.15	20.8
35035	0	780928	079448	003.60	052.32	0368.6	02.27	02.17	19.2	001.77	022.65	0279.9	03.11	27.62	002.93	037.58	0354.2	02.28	02.20	20.9
35035	M	781129	080031	004.23	057.65	0355.7	02.33	02.03	19.3	002.11	024.90	0269.7	03.30	28.10	006.25	057.78	0349.7	02.29	02.02	19.2
35035	1	790105	080324	003.32	051.82	0361.2	02.24	01.76	19.6	001.74	025.86	0270.4	02.73	28.01	004.15	044.00	0329.2	02.63	02.07	21.5
35035	2	790322	080866	003.44	073.30	0350.6	02.17	01.83	18.6	001.99	034.25	0269.9	03.08	26.87	004.14	071.72	0330.7	02.37	01.98	19.4
45001	0	771021	050815	002.80	040.08	0336.7	02.17	02.01	21.7	001.36	012.48	0279.4	02.82	29.23	002.61	031.67	0315.6	01.89	01.74	23.7
45001	M	771101	051038	002.10	038.61	0377.2	01.66	01.52	20.0	000.98	010.37	0341.8	01.52	24.57	001.81	024.70	0344.4	01.24	01.15	22.8
45001	1	780418	054144	003.46	041.47	0393.2	01.54	01.45	18.9	001.37	009.81	0310.4	01.69	26.86	003.64	029.92	0380.8	01.44	01.38	20.1
45001	2	780719	056350	003.30	040.13	0372.8	01.60	01.60	19.9	001.79	011.89	0283.7	01.57	28.79	003.94	033.84	0351.3	01.38	01.38	21.2
45001	3	781011	059321	002.77	038.94	0393.9	01.31	01.22	19.1	001.20	008.02	0302.0	01.58	27.85	002.97	030.42	0371.8	01.28	01.16	20.6
45001	4	790126	063499	002.63	042.97	0369.5	01.22	01.03	19.9	001.51	010.82	0286.3	01.51	28.79	003.75	029.12	0366.2	01.34	01.13	20.9
45002	0	771031	014608	002.75	033.57	0483.8	02.81	02.56	15.3	001.69	010.10	0369.9	04.45	22.67	002.66	031.16	0451.1	02.41	02.20	17.4
45002	M	780206	017644	002.54	019.16	0511.9	03.17	02.75	15.1	001.73	016.66	0407.0	04.79	20.22	002.73	042.61	0470.9	02.28	01.97	16.2
45002	1	780414	016821	002.76	022.31	0550.7	03.47	03.11	14.9	001.69	013.73	0397.9	04.39	20.87	002.77	028.43	0505.0	02.78	02.52	15.8
45002	2	780714	017983	002.79	027.25	0505.1	02.87	03.18	15.9	001.73	015.92	0367.4	04.24	22.29	002.92	034.44	0471.1	02.33	02.68	16.5
45002	3	781005	019082	002.84	039.85	0551.3	02.48	02.12	14.2	001.69	017.87	0390.8	03.80	20.90	002.53	034.33	0509.3	02.22	01.91	15.5
45002	4	790122	020502	002.33	024.40	0523.4	02.74	02.29	15.6	001.47	009.66	0374.8	04.41	22.47	002.37	026.15	0489.6	02.41	02.02	16.4

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
45003	0	771101	036695	005.07	075.12	0563.8	02.29	02.06	12.7	002.15	013.44	0430.0	03.80	19.36	003.62	064.49	0520.7	02.28	02.07	14.0
45004	0	771104	021295	003.66	051.86	0554.7	03.83	03.68	12.9	001.71	005.27	0453.6	05.40	18.98	003.21	046.90	0556.7	03.78	03.63	13.8
45005	0	771102	052077	003.26	056.12	0476.3	05.69	04.82	15.4	001.63	010.57	0404.6	07.94	20.80	002.93	050.71	0442.0	05.36	04.60	16.7
45005	M	771213	052610	002.88	025.12	0496.6	05.73	05.25	15.3	000.84	005.60	0412.1	05.33	20.94	002.35	016.33	0461.2	05.37	04.53	17.3
45005	1	780403	055464	002.61	029.23	0495.6	05.75	04.96	16.1	000.95	007.25	0428.7	05.40	20.01	002.39	025.98	0461.9	05.31	04.48	17.3
45005	2	780630	057170	003.01	015.36	0478.6	05.00	05.13	17.3	000.94	003.84	0405.6	04.99	21.39	002.27	008.67	0452.2	04.58	04.75	18.7
45005	3	781006	061826	002.22	008.81	0586.4	03.61	03.29	14.6	000.45	002.19	0513.9	03.55	17.10	002.17	008.14	0526.9	03.52	03.26	16.2
45005	4	790220	064447	003.89	056.98	0459.7	05.07	04.34	15.8	001.88	010.65	0372.4	06.68	22.45	003.33	035.09	0442.8	05.35	04.24	17.6
45006	0	771103	045441	005.95	063.70	0381.8	01.48	01.32	17.7	001.28	010.53	0274.6	02.02	30.04	004.81	046.81	0380.5	01.53	01.37	18.8
45006	M	771205	047566	003.44	032.48	0429.1	01.58	01.36	18.1	000.86	005.72	0285.5	01.89	29.84	003.32	021.07	0412.6	01.56	01.53	19.4
45006	1	780406	051730	004.07	040.24	0420.0	01.80	01.62	17.9	001.15	006.32	0284.6	02.48	29.74	003.36	026.54	0410.1	01.87	01.69	19.1
45006	2	780719	056943	004.45	040.09	0405.6	01.49	01.47	18.4	001.40	008.71	0280.4	02.22	29.71	003.75	030.85	0375.5	01.35	01.32	20.3
45006	3	781010	061375	004.75	045.48	0361.1	01.65	01.47	19.8	001.38	009.71	0264.2	02.30	31.24	003.70	035.79	0349.1	01.47	01.32	21.2
45006	4	790124	064797	004.75	055.87	0379.1	01.64	01.36	18.4	001.53	014.00	0267.7	02.49	30.10	003.55	038.64	0374.9	01.67	01.38	19.8
45007	0	771109	082050	002.63	027.02	0464.2	05.15	04.43	17.2	001.91	007.58	0388.4	06.87	21.82	002.13	018.85	0445.0	05.01	04.37	18.4
45007	M	771216	083216	001.67	009.94	0492.8	03.59	03.05	17.3	000.38	003.87	0355.9	05.10	24.31	001.24	005.20	0460.7	03.48	02.97	18.7
45007	1	780403	088373	005.76	071.65	0444.6	04.44	03.82	15.4	002.40	019.74	0387.0	07.04	20.84	004.62	066.25	0399.3	04.03	03.46	17.1
45007	2	780706	092864	002.75	039.39	0458.1	04.14	04.53	16.8	001.39	012.97	0335.0	05.47	24.65	002.48	038.43	0428.4	03.90	04.37	17.8
45007	3	780927	097924	002.98	028.78	0480.4	05.86	05.33	16.5	001.59	008.93	0392.1	08.44	21.57	002.54	023.89	0443.5	05.48	04.89	18.1
45007	4	790104	102772	003.19	026.28	0464.4	04.89	03.92	17.2	001.39	008.52	0368.9	02.73	22.94	002.26	021.83	0438.9	04.62	03.71	18.4
45008	0	771121	058407	002.88	058.83	0445.8	04.36	03.46	16.2	001.52	030.62	0331.8	05.37	23.05	002.34	043.44	0427.6	03.99	03.17	17.6
45008	M	771209	058520	002.19	031.85	0482.1	05.22	04.34	15.4	001.49	030.55	0366.8	06.26	21.14	001.90	022.19	0451.2	04.33	03.68	18.0
45008	1	780404	061586	002.50	036.48	0512.4	05.35	04.58	15.4	001.61	036.49	0385.1	06.42	19.81	002.03	022.98	0469.1	04.89	04.29	17.3
45008	2	780616	065052	001.93	021.09	0476.2	04.80	04.39	17.2	001.52	025.71	0345.2	05.90	22.71	001.38	013.99	0420.8	03.55	03.36	19.8
45009	0	771202	025490	004.81	074.68	0431.6	02.93	02.72	15.7	001.75	010.90	0356.4	05.32	23.39	004.02	069.63	0407.4	02.75	02.55	16.7
45009	M	771207	025556	001.91	010.09	0494.8	03.24	02.68	17.2	000.93	003.50	0360.6	03.96	24.04	001.59	006.29	0458.7	02.79	02.32	18.7
45009	1	780426	027056	003.88	048.79	0474.1	02.95	02.83	15.7	001.14	008.12	0371.9	04.50	22.84	002.27	037.20	0457.3	02.59	02.60	16.9
45009	2	780720	028306	002.30	038.53	0468.8	04.43	04.45	16.5	000.99	006.51	0351.6	06.43	24.29	001.90	031.49	0466.8	04.29	04.30	16.9
45009	3	781012	029527	002.22	039.55	0464.4	04.10	03.57	16.6	001.00	005.83	0359.6	06.35	23.84	002.96	031.57	0452.4	04.07	03.69	17.3
45009	4	790122	031118	002.13	023.87	0451.2	06.99	05.86	17.9	001.19	005.48	0355.5	11.08	24.11	001.81	015.27	0438.8	06.36	05.28	18.9
45010	0	771209	036795	002.33	058.44	0486.5	04.27	03.65	15.1	001.54	032.98	0374.1	05.39	20.59	002.36	062.31	0452.4	03.28	02.81	15.9
45010	M	771222	037857	001.81	018.26	0518.2	04.83	03.90	15.0	001.38	023.18	0384.5	05.62	20.85	001.86	023.36	0492.3	04.26	03.43	16.5
45010	1	780421	038985	001.91	019.60	0529.1	04.68	04.53	15.7	001.37	021.61	0389.6	05.95	20.73	001.83	022.56	0492.9	03.84	03.73	16.6
45010	2	780711	040308	001.86	021.91	0515.5	04.65	04.34	16.0	001.41	022.95	0380.7	05.57	21.05	001.75	025.33	0489.2	03.55	03.26	16.5
45010	3	780927	042170	002.06	023.59	0525.4	04.58	04.12	15.6	001.47	024.46	0376.4	05.10	21.14	002.06	028.61	0484.4	03.54	03.19	16.5
45010	4	781219	044088	001.91	024.55	0502.7	04.25	03.47	15.2	001.31	020.24	0354.4	05.09	22.72	001.73	019.90	0469.7	03.58	03.02	17.5
45011	0	771220	078921	006.61	111.64	0340.9	01.36	01.10	16.5	001.87	042.80	0242.9	01.63	28.06	005.40	090.94	0334.1	01.49	01.21	17.9
45011	M	780213	080762	004.26	101.68	0351.8	01.73	01.58	16.9	001.68	047.68	0261.3	02.46	25.97	003.87	082.07	0347.5	01.47	01.82	18.1
45011	1	780515	085992	004.18	042.75	0455.1	01.96	01.71	16.6	000.61	013.20	0310.3	02.72	26.63	004.57	027.05	0429.6	02.02	01.79	18.2
45011	2	780804	090885	005.33	031.22	0437.0	02.01	01.89	17.6	000.65	009.50	0314.1	02.69	26.79	005.22	023.92	0422.8	01.71	01.77	18.5
45011	3	781030	096343	005.33	034.43	0430.9	02.15	01.84	17.7	000.79	012.09	0310.9	03.38	26.68	005.22	022.75	0423.5	02.19	02.04	18.6
45011	4	790129	100721	004.22	071.99	0344.4	01.87	01.49	18.8	001.87	030.42	0249.6	02.72	29.24	003.86	055.92	0336.0	02.06	01.66	20.3
45012	0	771216	033570	003.88	077.66	0435.5	01.41	01.21	15.5	001.98	033.98	0359.4	01.76	21.16	003.30	065.05	0412.9	01.16	01.00	16.8
45012	M	780227	034884	004.42	089.39	0438.3	01.32	01.25	15.3	002.23	034.74	0372.0	01.73	20.45	003.47	074.91	0418.5	01.12	01.39	16.2
45012	1	780519	036643	004.37	087.43	0437.1	01.08	01.34	15.1	002.38	039.22	0389.2	01.65	19.34	003.79	081.44	0411.8	00.90	00.88	16.0
45012	2	780808	038747	004.12	091.11	0427.4	00.99	01.30	15.2	002.22	036.99	0373.6	01.40	20.21	003.66	079.18	0403.4	00.85	00.97	16.4
45012	3	781031	040492	003.72	055.11	0458.9	01.46	01.23	15.9	002.33	030.20	0388.8	02.11	20.03	002.93	045.03	0433.5	01.27	01.08	17.2
45012	4	790214	042830	003.23	054.73	0431.9	01.67	01.37	16.8	001.97	027.31	0355.0	02.06	21.94	003.03	040.92	0409.1	01.47	01.20	18.3
45013	0	771222	039073	003.89	050.98	0524.9	04.85	04.31	14.4	002.26	009.04	0409.8	08.41	20.57	003.23	033.51	0503.0	04.76	03.97	15.6
45013	M	780113	039305	002.91	024.73	0603.9	03.35	02.95	13.6	001.89	005.37	0418.8	05.40	20.49	002.37	014.64	0564.0	03.87	02.82	14.7
45013	1	780426	042051	004.16	068.76	0531.9	02.65	02.50	13.6	002.04	009.21	0427.2	05.40	19.79	003.26	048.95	0518.2	02.81	02.70	14.6
45013	2	780725	045657	004.22	065.50	0533.9	02.72	02.96	13.6	002.20	014.22	0372.0	04.31	22.10	003.46	052.64	0495.4	02.59	02.80	15.0
45013	3	781106	048263	004.92	074.39	0543.3	03.43	02.93	13.1	002.30	012.88	0420.8	05.78	19.78	003.72	057.43	0499.4	03.24	02.77	14.7
45013	4	790202	050718	004.80	077.73	0533.1	03.29	03.00	13.2	002.09	013.34	0384.7	05.39	21.51	003.54	055.65	0489.4	03.16	02.56	15.3
45014	0	771220	029731	003.47	038.57	0302.4	03.76	03.07	23.7	000.89	004.66	0236.0	04.17	36.03	002.52	033.27	0280.4	02.41	02.32	26.0
45014	M	780127	029912	002.94	025.94	0292.0	02.02	01.73	23.9	000.76	004.49	0240.7	02.50	35.45	002.47	024.41	0282.2	01.77	01.51	27.3
45014	1	780404	030819	002.90	035.97	0302.2	02.01	01.73	24.1	000.74	006.31	0251.2	02.80	33.63	002.42	031.79	0293.0	02.00	01.71	25.2
45014	2	780621	032167	003.15	031.14	0301.9	02.25	02.15	24.5	000.93	005.97	0236.2	02.95	35.69	002.64	028.94	0285.9	02.62	02.50	26.1
45014	3	780911	033466	003.79	030.98	0291.5	02.05	01.91	25.2	000.89	005.95	0227.2	02.66	37.04	003.03	029.47	0267.6	02.00	01.88	27.4
45014	4	781211	035113	003.51	032.49	0267.6	02.80	02.42	25.9	001.00	005.29	0213.0	03.66	34.51	002.82	029.32	0265.7	02.78	02.37	27.6
45015	0	771227	076343	004.48	060.18	0387.0	01.55	01.30	17.9	001.07	010.20	0296.2	01.85	28.10	004.33	054.99	0382.6	01.50	01.32	18.3
45015	M	780105	076422	002.16	027.90	0452.1	01.77	01.54	17.6	000.75	006.77	0302.5	01.79	28.11	001.74	021.57	0436.1	01.56	01.46	18.5
45015	1	780420	079498	002.35	026.90	0444.5	01.98	01.88	17.9	000.86	006.56	0314.2	02.08	27.10	002.07	022.56	0432.3	02.01	01.88	18.6
45015	2	780717	085357	002.58	034.60	0407.9	01.54	01.56	18.8	000.75	007.04	0298.7	01.53	28.41	002.26	031.04	0394.2	01.48	01.51	19.7
45015	3	781009	095309	002.49	027.01	0457.1	02.07	01.98	17.5	000.81	006.37	0342.5	02.07	24.97	001.90	016.57	0456.2	02.01	01.92	18.1
45015	4	790103	101743	002.02	026.52	0442.1	01.79	01.41	18.1	000.57	005.17	0306.8	01.88	28.00	001.58	019.38	0431.1	01.93	01.57	19.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

EPA NO	SEQ	DATE	ODOM	FTP						HFET					HS FTP					
				HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
45016	0	780106	020727	003.67	058.19	0346.5	03.09	02.71	19.7	001.90	019.94	0305.9	04.23	25.84	003.05	051.47	0323.6	03.18	02.80	21.4
45016	M	780117	020887	002.25	035.36	0389.1	03.10	02.87	19.6	001.58	018.68	0317.3	04.21	25.22	002.03	027.38	0376.7	03.13	02.83	20.3
45016	1	780427	023399	002.57	036.36	0402.0	03.50	03.33	19.0	001.67	012.79	0325.8	04.71	25.25	002.22	026.19	0373.5	03.18	03.02	21.0
45016	2	780721	025225	002.60	032.02	0387.7	03.55	03.48	19.9	001.87	013.94	0324.7	04.97	25.16	002.39	026.77	0375.4	03.33	03.22	20.8
45016	3	781023	027004	003.13	047.50	0414.3	03.51	03.16	17.8	001.99	020.08	0343.9	05.44	23.23	002.85	037.20	0390.6	03.37	03.07	19.3
45016	4	790125	028673	002.38	033.65	0400.5	04.57	03.77	19.2	001.51	017.08	0308.2	05.82	26.09	002.05	025.35	0370.4	04.16	03.43	21.2
45017	0	771219	022565	003.12	023.90	0315.4	03.31	02.80	24.4	000.92	006.76	0239.0	04.61	35.12	002.91	018.89	0300.9	03.14	02.58	26.0
45017	M	780119	022965	003.13	025.00	0310.0	02.97	02.55	24.7	001.34	008.86	0235.8	04.24	35.05	002.87	025.35	0306.5	02.77	02.43	24.9
45017	1	780425	024497	003.05	028.92	0331.9	03.53	03.37	22.9	001.09	009.69	0261.8	04.86	31.62	002.62	022.93	0319.2	03.16	03.07	24.3
45017	2	780724	025547	002.74	026.62	0313.1	02.90	02.84	24.4	000.91	008.43	0236.9	04.37	35.05	002.27	022.14	0298.9	02.68	02.66	26.0
45018	0	780118	038912	002.96	039.23	0541.3	02.85	02.49	16.5	001.67	007.54	0434.9	04.90	19.62	002.24	029.08	0514.9	02.45	02.17	15.6
45018	M	780202	038962	003.47	042.00	0565.9	05.71	05.10	13.8	002.04	009.94	0423.3	06.47	19.91	003.26	030.94	0534.3	04.92	04.45	14.9
45018	1	780504	040590	002.87	039.93	0566.4	06.02	05.32	13.9	001.71	007.92	0422.7	06.67	20.13	002.77	026.16	0543.0	05.24	04.35	14.9
45018	2	780809	043180	003.31	044.71	0595.0	05.27	05.37	13.1	001.84	011.43	0411.5	04.85	20.37	003.07	034.49	0540.4	03.93	04.05	14.6
45018	3	781106	051144	003.04	045.67	0603.9	05.48	04.72	12.9	001.65	010.13	0458.4	05.76	18.49	002.74	034.93	0577.8	04.76	04.08	13.8
45018	4	790313	055838	009.25	052.54	0575.1	04.14	03.47	12.9	002.86	009.97	0427.9	05.03	19.59	008.89	039.69	0545.5	03.94	03.31	13.9
45019	0	780119	027201	002.89	054.09	0439.4	03.63	03.17	16.6	001.32	001.10	0339.3	20.75	25.69	002.55	045.63	0413.9	03.40	02.99	17.9
45019	M	780223	027494	001.66	008.57	0474.5	03.81	03.73	18.3	001.33	002.25	0338.2	04.64	25.71	001.48	005.06	0444.2	03.34	03.21	19.4
45019	1	780522	028238	001.63	005.75	0482.2	03.60	03.14	17.9	001.04	002.35	0345.9	04.54	25.13	001.43	004.04	0442.1	03.19	02.75	19.5
45019	2	780810	029525	001.64	006.11	0473.1	03.15	03.32	18.2	001.03	002.44	0338.8	03.74	25.64	001.73	005.55	0450.9	02.83	03.10	19.0
45019	3	781114	032233	001.70	010.89	0469.4	04.54	03.61	18.0	001.02	002.77	0348.6	05.20	24.90	001.45	005.71	0443.1	03.91	03.13	19.4
45019	4	790209	032846	001.78	011.87	0457.5	03.68	03.41	19.4	001.12	003.61	0348.5	05.04	24.79	001.67	008.79	0422.2	03.55	03.23	20.0
45020	0	780126	037148	005.22	027.64	0407.2	02.27	01.96	19.0	001.20	006.00	0322.9	04.62	26.39	005.53	020.93	0393.0	01.76	01.52	20.0
45020	M	780214	037461	002.36	031.50	0422.2	01.95	01.83	19.5	000.95	005.33	0309.3	03.43	27.66	001.75	020.22	0413.4	01.97	01.88	19.6
45020	1	780517	039494	002.33	038.89	0404.1	01.76	01.57	18.8	001.07	007.00	0298.3	03.37	28.36	002.15	031.12	0400.4	01.97	01.84	19.4
45020	2	780831	042404	002.84	040.95	0389.4	03.29	03.20	19.2	001.31	004.65	0301.7	04.35	27.62	002.39	036.81	0387.3	03.55	03.38	19.5
45020	3	781128	044742	002.04	023.61	0407.3	03.45	03.10	19.7	001.22	006.55	0293.4	04.92	28.83	001.76	012.44	0393.2	03.63	03.23	21.2
45020	4	790213	046339	001.97	028.36	0416.0	03.19	02.72	19.0	000.99	007.81	0298.8	04.34	28.22	001.64	017.69	0408.0	03.39	02.86	20.1
45021	0	780227	034134	005.22	096.54	0500.1	02.36	02.30	13.3	003.15	050.40	0368.3	02.50	19.38	004.19	067.52	0511.2	02.87	02.81	14.0
45021	M	780309	034312	004.30	070.96	0599.5	01.89	01.51	12.2	003.11	050.27	0424.4	02.93	17.28	003.07	047.00	0585.3	01.93	01.59	13.2
45021	1	780605	035273	003.91	069.61	0558.2	01.32	01.31	13.0	002.89	045.61	0381.5	02.09	19.18	002.94	044.51	0549.5	01.48	01.47	14.1
45021	2	780927	037793	005.02	108.76	0529.8	01.61	01.36	12.4	002.99	049.89	0386.5	02.74	18.69	003.93	084.58	0533.8	01.76	01.56	13.3
45021	3	781226	038711	005.11	106.62	0538.9	01.71	01.43	12.3	003.31	057.70	0376.3	02.71	18.57	003.80	071.97	0535.5	01.91	01.64	13.4
45021	4	790319	039363	005.43	085.83	0544.1	01.69	01.46	12.7	003.30	059.27	0386.2	02.71	18.10	003.80	059.61	0572.1	01.88	01.62	13.0
45022	0	780302	023396	001.04	013.80	0538.0	04.38	03.59	15.8	000.33	003.37	0411.2	05.77	21.24	000.95	009.18	0509.7	04.02	03.36	16.8
45022	M	780306	023423	001.16	014.36	0508.8	03.45	02.93	15.6	000.47	005.20	0374.4	04.60	23.09	001.20	012.85	0488.6	03.24	02.83	17.3
45022	1	780526	024488	001.29	019.76	0544.8	04.08	03.74	15.3	000.48	004.95	0422.7	05.93	20.53	001.33	014.72	0521.3	03.77	03.49	16.1
45022	2	780901	026735	001.21	012.86	0519.9	03.09	03.01	15.3	000.28	004.38	0419.4	03.75	20.76	001.36	012.13	0487.5	02.83	02.76	17.3
45022	3	781130	027694	001.17	017.04	0509.6	03.33	03.10	16.4	000.36	005.55	0424.6	04.04	20.41	001.37	015.19	0473.6	02.92	02.69	17.6
45022	4	790305	028563	001.56	018.74	0502.5	03.69	03.52	16.5	000.78	006.67	0387.9	05.73	22.12	001.68	019.60	0468.2	03.26	03.11	17.5
45023	0	780313	045837	004.92	019.13	0542.8	02.28	01.88	15.1	000.39	002.46	0446.7	02.18	19.63	004.86	020.90	0493.5	02.24	01.85	16.3
45023	M	780405	046835	001.22	012.27	0492.6	02.36	02.37	17.2	000.51	003.68	0373.6	04.17	23.27	001.20	011.37	0459.8	02.39	02.13	18.4
45023	1	780601	048558	001.25	013.28	0474.7	02.63	02.34	17.8	000.62	003.52	0338.5	04.65	25.63	001.35	012.18	0436.1	02.53	02.36	19.3
45023	2	780817	050976	001.08	014.77	0507.6	02.47	02.36	16.6	000.48	003.43	0355.4	04.34	24.48	000.97	011.35	0476.5	02.15	02.07	17.8
45023	3	781109	052430	007.90	016.05	0500.8	02.62	02.22	16.1	000.92	003.70	0402.3	02.49	21.57	007.67	012.72	0456.2	02.46	02.08	17.7
45023	4	790207	054706	001.38	028.80	0468.4	02.26	01.35	17.1	000.52	004.29	0344.3	03.70	25.15	001.27	027.45	0441.2	02.06	01.79	18.1
45024	0	780322	057302	003.63	058.07	0634.3	02.56	02.27	12.0	001.94	012.45	0462.5	04.04	18.16	003.24	068.48	0595.0	02.37	02.10	12.4
45024	M	780424	057451	003.95	058.84	0655.9	02.45	02.18	11.7	002.18	016.08	0476.2	03.95	17.44	002.77	035.47	0623.5	02.37	02.28	12.8
45024	1	780620	058572	003.26	047.19	0638.3	02.06	02.03	12.3	002.16	014.83	0468.1	03.74	17.80	003.06	036.90	0651.2	02.30	02.53	12.3
45024	2	780908	059753	003.98	060.87	0651.8	02.19	02.09	11.7	002.39	018.45	0459.5	03.70	17.88	002.72	031.62	0671.4	02.53	02.47	12.1
45024	3	781205	060656	004.20	052.49	0636.3	02.64	02.21	12.2	001.96	009.10	0451.5	04.70	18.79	002.74	027.39	0622.6	02.94	02.47	13.1
45024	4	790221	061049	004.36	064.05	0627.8	02.62	02.32	11.9	002.48	020.82	0446.7	04.36	18.20	003.02	040.47	0618.9	02.78	02.44	12.8
45025	0	780310	015138	005.47	097.56	0299.4	02.46	02.32	18.4	001.81	020.33	0262.3	04.29	29.56	005.06	093.65	0298.0	02.52	02.42	19.2
45025	M	780411	015292	003.24	032.18	0348.1	03.52	03.35	21.7	001.39	006.41	0270.4	05.28	31.13	002.88	023.82	0325.7	03.28	02.85	23.4
45025	1	780620	016165	003.79	082.00	0287.9	02.17	02.10	20.7	001.27	023.35	0251.4	03.98	30.36	003.27	072.10	0283.4	02.14	02.05	21.7
45025	2	780913	020074	003.69	072.17	0320.1	01.65	01.51	19.9	001.71	023.68	0248.3	02.79	30.48	002.96	057.60	0304.8	01.58	01.54	21.3
45025	3	781205	020731	002.95	066.89	0279.6	01.43	01.19	22.5	001.58	021.20	0238.4	02.94	32.05	002.55	059.96	0304.6	01.76	01.48	21.7
45025	4	790221	021426	002.87	064.45	0294.6	01.48	01.27	21.9	001.64	024.71	0236.0	02.52	31.66	002.92	059.34	0301.0	01.50	01.37	21.9
45026	0	780406	024857	002.83	072.42	0524.8	03.70	03.29	14.7	001.94	037.45	0367.2	04.57	20.52	002.76	068.90	0500.3	03.07	02.68	14.3
45026	M	780412	029972	002.37	047.71	0541.6	03.58	03.21	14.2	001.78	032.35	0373.9	04.79	20.61	002.04	035.43	0524.2	03.18	02.86	15.1
45026	1	780626	030946	002.42	053.12	0556.2	03.13	02.89	13.8	001.87	040.78	0372.2	04.09	20.05	002.34	049.41	0518.4	02.55	02.39	14.6
45026	2	780919	031611	002.08	031.89	0575.0	04.00	03.57	14.0	001.79	027.47	0399.9	05.50	19.76	001.83	022.89	0558.6	03.79	03.38	14.7
45026	3	781212	032359	002.96	062.46	0542.8	03.23	02.76	13.6	002.10	053.79	0364.3	04.22	19.67	002.74	059.50	0529.7	02.83	02.42	14.0
45026	4	790312	033626	002.47	046.21	0513.6	03.17	02.77	14.9	001.77	030.37	0358.2	04.40	21.55	002.33	043.44	0490.0	02.57	02.36	15.6

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
45027	0	780411	049671	002.77	035.46	0295.4	03.21	02.85	24.6	000.72	005.27	0235.0	04.92	36.11	002.57	036.07	0289.7	02.96	02.56	25.0
45027	M	780425	049947	003.02	021.33	0302.8	02.21	02.30	25.6	000.63	003.18	0245.6	02.99	35.12	002.77	018.48	0294.7	02.08	01.86	26.6
45027	1	780714	052942	002.59	020.56	0301.6	01.76	01.86	25.9	000.63	004.11	0250.8	02.74	34.20	002.52	022.52	0297.4	01.54	01.77	26.0
45027	2	781011	057550	003.11	022.41	0331.4	02.26	01.99	23.6	000.66	003.76	0263.4	03.43	32.67	002.55	017.60	0322.5	02.15	01.88	24.7
45027	3	781227	060619	002.86	021.68	0367.1	03.02	02.55	21.6	000.62	003.28	0257.7	03.27	33.49	002.34	017.82	0345.8	02.51	02.14	23.2
45027	4	790313	064680	002.52	027.69	0333.2	02.34	01.91	23.0	000.57	003.74	0260.4	03.26	33.08	002.33	022.41	0321.0	02.07	01.69	24.3
45028	0	780406	039011	003.05	050.61	0364.1	04.64	04.15	19.6	001.28	016.78	0291.0	06.61	27.59	002.62	042.37	0349.0	04.78	04.30	20.9
45028	M	780511	040367	002.44	042.12	0362.3	04.76	04.23	20.3	001.15	018.04	0281.5	06.27	28.29	002.11	032.34	0336.8	04.27	03.85	22.4
45028	1	780706	043035	003.20	045.44	0333.4	03.10	03.29	21.4	001.37	020.46	0253.4	04.70	30.59	003.04	040.08	0313.9	02.99	03.10	22.9
45028	2	781002	047420	002.29	046.43	0332.3	03.66	03.27	21.5	001.20	021.66	0256.6	05.41	30.11	002.09	038.18	0318.2	03.52	03.16	23.0
45028	3	781226	052489	002.76	047.17	0313.8	03.32	02.76	22.4	001.31	022.12	0238.7	04.90	31.94	002.42	036.95	0299.7	03.35	02.80	24.2
45028	4	790312	056051	004.28	049.80	0331.6	02.39	02.05	20.9	001.44	019.76	0243.7	03.99	31.74	004.43	042.35	0308.5	02.12	01.98	22.7
45029	0	780418	001986	003.89	042.03	0301.7	02.66	02.44	23.3	001.20	011.61	0249.4	03.56	32.66	003.17	037.75	0289.7	02.51	02.27	24.7
45029	M	780504	002299	003.78	032.63	0325.7	03.47	02.78	22.3	001.16	009.55	0264.0	04.39	31.37	003.24	027.25	0311.5	03.20	02.73	24.3
45029	1	780801	004137	004.59	036.00	0294.2	02.33	02.21	24.3	001.31	011.20	0242.0	03.19	33.62	004.15	034.33	0305.0	02.65	02.52	23.8
45029	2	781109	006482	003.04	037.86	0312.4	03.47	02.91	23.2	000.97	007.60	0251.7	05.13	33.25	002.39	034.12	0294.2	03.13	02.62	24.9
45029	3	790115	008187	002.77	022.59	0306.9	03.20	02.52	25.7	001.05	007.16	0229.3	05.00	36.36	002.47	017.94	0293.2	03.04	02.50	26.9
45029	4	790327	009611	002.62	021.77	0298.3	02.91	02.64	26.0	000.90	007.24	0226.3	04.44	36.88	003.57	020.52	0291.0	02.57	02.42	26.5
45030	0	780427	071907	001.50	020.94	0860.6	01.65	01.62	09.9	000.39	003.64	0715.7	01.73	12.27	001.85	018.43	0778.6	01.61	01.60	10.9
45030	M	780608	073047	001.65	013.90	0876.4	01.70	01.52	09.8	000.48	003.82	0679.7	01.64	12.90	001.86	017.66	0795.4	01.56	01.65	10.7
45030	1	780725	074290	002.54	036.30	0743.2	05.85	06.11	11.0	000.91	011.45	0519.5	06.10	16.41	002.15	029.21	0698.6	05.13	05.31	11.8
45030	2	781016	077828	001.99	030.92	0804.5	06.42	05.98	10.3	000.78	009.20	0590.2	06.61	14.61	001.73	038.69	0756.3	05.27	04.98	10.7
45030	3	790116	079518	001.86	030.09	0753.2	06.38	05.34	11.0	000.65	011.20	0527.6	06.12	16.21	001.63	035.45	0709.1	05.11	04.27	11.5
45030	4	790327	081919	002.93	035.79	0812.3	02.22	01.98	10.1	000.89	008.44	0580.2	02.35	14.87	002.34	027.21	0724.7	02.15	01.89	11.4
45031	0	780928	054013	002.04	014.46	0320.6	05.36	04.96	25.4	001.06	002.65	0229.6	07.27	37.40	001.89	009.04	0308.4	05.32	05.24	26.9
45031	M	781005	054270	001.71	015.09	0330.5	03.67	03.27	24.7	000.89	003.12	0226.1	05.08	37.92	001.83	010.36	0316.4	03.31	03.13	26.2
45031	1	781222	057235	002.51	025.07	0331.7	01.98	01.77	23.4	000.95	004.63	0227.7	03.14	37.26	002.10	014.69	0335.9	01.88	01.68	24.2
45031	2	790307	059667	002.12	012.93	0279.7	03.34	02.95	28.9	001.12	002.56	0210.6	05.33	40.64	001.86	006.80	0267.7	03.10	02.72	31.1
45032	0	781013	070886	004.85	027.01	0654.6	04.25	03.77	12.4	001.41	008.71	0512.2	06.86	16.72	004.72	021.35	0614.8	04.62	04.07	13.3
45033	0	781228	023467	003.27	056.45	0415.3	03.37	02.70	17.2	001.85	020.58	0345.4	04.78	23.12	003.35	052.98	0401.5	03.25	02.61	17.9
45033	M	790207	024654	002.62	034.22	0439.2	02.98	02.75	17.7	001.65	021.14	0341.8	04.12	23.33	002.41	029.66	0421.7	02.73	02.55	18.5
45033	1	790323	023995	002.82	035.42	0449.3	03.52	03.04	17.3	001.74	023.10	0355.3	04.72	22.33	002.93	038.63	0422.8	03.16	02.74	17.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
56001	0	771206	051032	008.15	068.62	0426.5	05.89	05.19	15.8	000.98	004.81	0378.3	06.94	22.80	007.23	063.59	0381.3	05.50	04.89	17.5
56002	0	771201	034484	001.99	034.45	0643.3	02.18	02.05	12.6	000.26	003.74	0431.5	03.86	20.24	001.29	028.73	0611.9	02.17	02.05	13.4
56002	M	771213	039667	001.28	029.71	0659.9	02.08	01.97	12.5	000.18	003.43	0452.3	03.95	19.32	000.85	022.24	0640.7	02.11	02.07	13.2
56002	1	780331	042883	001.20	030.01	0663.3	02.46	02.07	12.4	000.14	002.25	0463.7	05.36	18.96	000.71	015.07	0656.0	02.79	02.31	13.0
56002	2	780621	045340	001.24	030.20	0665.4	02.46	02.43	12.4	000.22	003.81	0427.6	04.28	20.42	000.91	019.67	0648.0	02.59	02.48	13.0
56002	3	780914	047055	001.54	035.53	0697.9	02.47	02.35	11.7	000.25	005.89	0458.0	04.67	18.95	001.54	041.43	0650.6	02.38	02.26	12.3
56002	4	781207	049261	008.36	015.37	0717.3	04.29	03.49	11.5	001.63	001.99	0509.5	07.35	17.13	006.41	007.84	0674.2	04.20	03.41	12.5
56003	0	771202	016958	002.67	065.08	0617.1	01.97	01.86	12.2	000.25	003.89	0519.3	02.00	16.85	001.77	046.56	0605.4	01.93	01.82	12.9
56003	M	771208	017054	001.33	016.19	0637.8	02.05	01.59	13.3	000.14	000.84	0498.1	01.98	17.74	000.71	002.90	0624.3	02.21	01.80	14.3
56003	1	780412	018547	001.28	018.53	0663.5	02.31	02.09	12.7	000.12	000.90	0521.6	02.24	16.96	000.65	002.88	0634.6	02.43	02.20	13.8
56003	2	780711	020303	001.12	014.37	0627.4	02.27	02.12	13.6	000.14	000.88	0459.5	02.02	19.22	000.59	002.77	0584.4	02.21	02.06	15.0
56003	3	780928	0[illegible]2792	002.57	061.02	0615.6	02.28	02.17	12.3	000.33	004.36	0507.5	02.17	17.21	001.99	050.87	0577.2	02.24	02.11	13.3
56003	4	790103	025753	003.33	080.70	0565.1	02.46	01.94	12.6	000.39	005.48	0456.2	02.31	19.03	002.47	064.34	0549.5	02.71	02.13	13.4
56004	0	771201	035362	001.43	018.19	0408.1	02.39	01.97	20.1	000.33	002.27	0321.9	02.64	27.16	001.21	016.67	0370.1	02.35	01.93	21.7
56004	M	771217	035678	001.04	018.03	0398.8	02.25	02.19	23.6	000.33	002.15	0326.6	02.83	26.79	000.83	011.09	0385.4	02.21	02.17	21.8
56004	1	780324	042160	001.04	015.54	0415.3	02.24	02.31	19.7	000.37	002.31	0327.9	03.28	26.66	000.79	015.47	0377.5	02.24	02.01	21.9
56004	2	780613	043980	001.22	017.61	0396.9	02.54	02.28	20.7	000.42	002.33	0302.8	03.29	28.82	000.95	015.49	0377.4	02.56	02.28	21.9
56004	3	780911	046023	001.10	020.69	0365.9	01.90	01.78	22.1	000.35	002.20	0295.2	03.34	29.58	000.95	015.74	0341.1	01.80	01.72	24.3
56004	4	781205	048363	001.13	020.03	0373.2	02.11	01.76	21.7	000.38	002.66	0305.7	03.01	28.51	000.98	016.14	0345.2	02.13	01.79	23.7
56005	0	771203	049268	003.97	003.78	0543.9	03.07	02.57	15.8	001.12	001.15	0402.9	03.13	21.72	003.92	002.75	0505.4	02.96	02.59	16.9
56005	M	780103	049609	002.36	010.99	0523.2	01.53	01.28	15.2	000.18	000.71	0398.9	01.79	22.13	001.86	004.85	0505.0	01.36	01.16	17.1
56005	1	780406	052742	002.93	034.90	0498.0	01.54	01.38	15.8	000.61	005.83	0382.4	01.52	22.54	003.69	022.49	0477.0	01.22	01.10	16.9
56005	2	780712	057182	003.50	049.73	0474.7	01.00	01.00	15.7	001.42	021.04	0342.5	00.88	23.33	005.47	062.93	0436.1	00.81	00.83	16.0
56005	3	781004	059853	004.39	066.63	0472.9	01.17	01.07	15.3	001.30	018.30	0373.0	01.11	21.85	005.91	070.29	0441.1	00.88	00.83	15.5
56005	4	790123	061974	006.53	094.64	0397.5	02.28	01.90	15.6	002.19	028.90	0324.6	02.70	23.52	007.50	096.62	0382.9	01.91	01.60	15.8
56006	0	771212	017684	001.74	011.24	0523.3	04.92	04.42	16.2	000.08	000.32	0372.1	06.21	23.78	000.51	003.47	0490.8	04.13	03.74	17.8
56006	M	780202	018577	001.63	032.61	0500.2	03.98	03.50	15.3	000.13	002.64	0394.9	06.38	22.20	002.36	054.71	0441.2	02.85	02.41	16.5
56006	1	780501	019771	000.71	009.04	0538.0	06.22	05.44	16.0	000.11	000.42	0392.4	09.15	22.54	000.60	003.77	0504.6	05.43	04.72	17.3
56006	2	780810	021234	000.69	011.46	0505.7	04.04	04.26	15.7	000.08	000.58	0375.4	06.66	23.55	000.63	004.84	0483.6	03.56	03.97	17.9
56006	3	781030	022783	001.18	011.54	0502.1	04.67	04.04	15.9	000.12	000.64	0385.6	07.97	22.92	000.51	007.02	0484.6	04.55	03.90	17.8
56006	4	790201	024036	003.92	039.95	0486.7	03.56	02.84	15.8	000.47	008.28	0389.1	04.21	21.97	002.55	034.60	0457.4	03.16	02.92	17.0
56007	0	771216	041739	001.36	014.81	0371.0	03.16	03.05	22.3	000.74	003.44	0230.6	03.18	37.20	001.32	013.98	0359.0	03.05	02.98	23.0
56007	M	780204	043280	001.52	005.55	0356.8	03.00	02.76	23.9	000.67	001.87	0222.1	03.28	39.04	001.18	004.12	0337.0	02.92	02.70	25.5
56007	1	780505	046025	001.95	007.47	0336.8	03.67	03.18	25.0	000.74	002.07	0227.2	04.17	38.10	001.80	004.73	0320.5	03.65	03.18	26.5
56007	2	780814	048014	001.57	005.34	0352.7	02.78	02.66	24.2	000.80	002.00	0239.4	03.36	36.19	001.58	003.19	0340.9	02.77	02.67	25.2
56007	3	781113	053456	001.79	009.54	0373.4	03.71	02.97	22.5	001.22	004.36	0237.4	04.38	35.74	001.44	004.85	0360.7	03.75	03.01	23.7
56007	4	790216	057060	002.01	017.67	0388.3	03.03	02.53	21.0	001.13	005.26	0228.9	03.26	36.83	001.81	010.53	0375.5	03.11	02.73	22.2
56008	0	780118	035565	003.24	084.41	0410.8	02.64	02.33	15.0	001.56	027.84	0372.4	03.32	21.08	003.35	090.35	0376.0	02.18	01.92	16.7
56008	M	780208	036482	001.70	041.84	0441.8	02.26	01.37	17.3	001.12	021.73	0383.2	02.51	21.07	001.92	041.89	0404.8	02.36	01.81	18.6
56008	1	780505	039876	001.82	046.88	0424.0	01.92	01.61	17.6	001.14	022.06	0368.4	02.49	21.81	002.23	042.55	0399.7	02.02	01.71	18.7
56008	2	780801	042549	001.75	053.10	0463.1	01.02	00.98	15.1	000.94	025.90	0412.4	01.20	19.44	002.45	061.80	0429.4	01.06	01.03	16.6
56008	3	781101	045674	001.70	032.36	0507.9	01.67	01.39	15.7	001.00	020.65	0427.2	01.61	19.16	001.98	039.64	0458.6	01.39	01.18	16.8
56008	4	790201	047285	002.59	073.79	0441.4	01.19	00.95	15.7	001.30	026.71	0390.3	01.28	20.32	002.61	064.71	0404.2	01.18	00.95	17.2
56009	0	771219	032364	001.59	019.92	0357.4	03.42	02.81	22.5	000.65	011.21	0260.5	04.68	31.65	001.53	017.99	0343.5	03.13	02.55	23.5
56009	M	780112	033028	001.54	021.66	0364.1	03.32	02.84	22.0	000.71	011.15	0256.1	04.62	32.38	001.62	018.02	0344.0	03.20	02.72	23.4
56009	1	780425	036869	002.11	022.52	0377.5	03.48	03.26	21.1	000.68	011.38	0281.9	04.60	29.37	002.12	017.88	0361.8	03.25	03.05	22.3
56009	2	780725	040295	001.84	018.73	0352.2	01.76	02.34	22.9	000.56	009.80	0240.8	02.76	34.37	001.95	014.54	0331.1	01.74	02.12	24.6
56009	3	781017	043851	001.33	016.80	0377.7	03.23	03.02	21.7	000.54	011.27	0263.1	04.56	31.39	001.42	014.69	0361.1	02.97	02.75	22.8
56010	0	771227	019490	001.18	012.96	0412.4	01.57	01.31	20.3	000.37	001.85	0259.9	01.63	33.59	001.00	008.84	0391.3	01.50	01.27	21.7
56010	M	780227	020693	001.17	008.63	0432.7	01.40	01.61	19.7	000.35	001.88	0267.9	02.49	32.61	000.99	006.66	0415.2	01.50	01.53	20.6
56011	0	780104	014470	000.82	015.49	0339.9	02.77	02.42	24.2	000.35	005.38	0235.9	04.64	36.12	000.67	017.66	0340.5	02.37	02.07	23.9
56011	M	780114	014686	002.14	009.44	0295.7	02.49	02.17	27.6	000.60	004.27	0229.4	04.87	37.26	002.10	011.42	0288.1	02.35	02.05	28.3
56011	1	780427	015903	001.98	017.44	0329.9	02.48	02.33	24.4	000.56	006.55	0241.2	05.10	35.02	001.72	012.40	0319.6	02.53	02.44	25.7
56011	2	780720	016074	000.61	025.11	0385.6	01.37	01.29	20.8	000.51	004.58	0232.1	04.12	35.69	001.06	016.61	0305.3	02.07	01.91	26.4
56011	3	781005	017443	001.88	016.66	0313.5	02.36	01.99	25.7	000.51	004.31	0227.0	04.26	36.46	002.05	015.57	0294.8	02.24	01.87	27.2
56011	4	790102	018363	000.67	008.61	0331.6	02.45	01.92	25.5	000.42	003.03	0243.2	05.78	35.57	000.66	009.21	0327.8	02.73	02.15	25.7
56013	0	780119	035363	005.79	062.48	0340.3	01.88	01.63	19.4	001.70	016.85	0258.1	03.04	30.58	005.38	057.80	0314.5	01.76	01.53	20.9
56013	M	780202	035316	002.81	035.60	0401.8	01.45	01.32	19.3	000.75	009.32	0265.2	01.82	31.42	002.34	030.20	0378.3	01.69	01.35	20.4
56013	1	780522	037280	002.63	026.03	0424.2	03.93	03.49	18.7	000.80	003.77	0288.3	04.70	29.88	002.21	020.16	0401.0	03.58	03.18	20.1
56013	2	780802	039523	002.61	028.37	0366.0	01.93	01.37	21.2	001.05	010.27	0256.0	02.57	32.19	002.53	029.06	0352.0	01.88	01.93	21.8
56013	3	781026	041228	003.02	032.01	0407.4	02.75	02.32	19.0	000.91	007.25	0278.5	03.17	30.28	002.85	031.01	0381.5	02.35	02.00	20.1
56013	4	790124	043419	003.46	037.38	0376.9	02.23	01.84	19.9	001.14	008.81	0259.5	02.68	32.02	003.09	034.75	0353.8	02.15	01.78	21.2

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	JDUM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
56014	0	780119	037187	001.47	011.46	0505.5	03.08	02.67	16.8	000.14	000.37	0389.0	02.66	22.74	000.60	003.46	0477.8	02.63	02.28	18.2
56014	M	780131	037350	001.39	004.30	0538.5	03.35	02.72	15.1	000.09	000.10	0391.1	02.69	22.65	000.25	000.54	0511.2	02.85	02.49	17.2
56014	1	780505	039963	001.01	003.96	0528.0	02.34	01.93	15.5	000.11	000.18	0417.6	01.34	21.20	000.36	000.75	0495.4	01.71	01.43	17.8
56014	2	780818	041953	000.55	002.86	0533.0	02.09	02.14	15.4	000.10	000.16	0429.2	01.24	20.64	000.31	000.80	0499.4	01.61	01.67	17.6
56014	3	781207	044618	001.97	011.06	0507.3	02.29	01.86	15.7	000.20	000.53	0388.5	01.38	22.74	000.66	002.28	0487.8	01.89	01.57	17.9
56014	4	790227	045854	000.97	003.92	0514.1	02.20	01.87	15.9	000.21	000.52	0386.2	01.33	22.88	000.50	001.01	0486.2	01.98	01.70	18.1
56015	0	780119	033712	001.49	039.40	0510.1	02.69	02.33	15.4	000.23	002.39	0417.1	02.04	21.04	001.13	033.09	0477.9	02.57	02.25	16.6
56015	M	780202	033974	000.88	012.47	0519.1	02.36	02.07	15.4	000.15	000.93	0437.1	01.88	20.20	000.72	006.44	0495.2	02.26	02.01	17.4
56015	1	780504	035684	000.52	007.84	0519.3	02.04	01.70	16.6	000.10	000.32	0413.0	01.69	21.43	000.52	001.29	0499.0	02.07	01.75	17.6
56015	2	780728	037567	000.79	007.32	0518.1	01.84	01.96	15.7	000.15	001.00	0379.0	01.48	23.27	000.72	004.16	0485.1	01.84	01.92	17.9
56015	3	781024	039245	000.48	005.82	0534.9	02.49	02.18	15.3	000.13	000.81	0399.0	02.33	22.13	000.57	003.39	0509.6	02.76	02.42	17.1
56015	4	790126	040526	000.53	006.10	0499.8	02.35	01.95	17.4	000.13	000.17	0359.3	01.95	24.64	000.40	001.35	0466.2	02.21	01.84	18.8
56016	0	780119	065068	002.02	012.35	0423.7	02.73	02.42	19.7	000.58	004.21	0279.1	03.38	30.84	001.57	009.02	0408.5	02.69	02.39	20.7
56016	M	780214	065560	002.36	023.21	0394.5	02.64	02.40	23.2	001.35	015.04	0243.0	02.80	32.85	001.98	021.78	0375.6	02.44	02.25	21.3
56016	1	780628	073827	003.35	036.04	0389.9	01.92	01.89	19.4	001.27	017.97	0243.7	02.25	32.13	002.96	027.24	0372.9	02.00	01.93	20.8
56016	2	780915	076772	008.33	053.45	0359.2	02.20	02.04	18.9	004.15	021.39	0246.5	02.81	30.23	013.43	034.62	0370.5	02.35	02.16	18.9
56016	3	121178	080989	007.49	069.25	0351.0	02.19	01.87	18.3	001.88	028.15	0229.2	02.50	31.75	006.20	060.04	0328.6	02.02	01.71	20.0
56016	4	790228	085840	007.93	069.85	0318.0	01.92	01.53	19.6	001.98	028.36	0225.3	02.53	32.12	005.57	054.98	0319.7	02.10	01.96	20.9
56017	0	780123	061441	003.73	071.04	0593.1	02.10	01.78	12.4	002.17	063.31	0418.6	02.04	16.89	003.39	074.19	0545.2	01.58	01.34	13.1
56017	M	780214	061829	003.57	057.60	0599.9	01.30	01.22	12.5	001.35	037.70	0437.9	01.71	17.63	002.47	040.95	0588.3	01.16	01.25	13.4
56017	1	780512	064179	003.20	060.71	0614.1	01.57	01.31	12.3	001.69	043.48	0453.0	01.98	16.84	002.89	059.30	0575.4	01.42	01.19	13.0
56017	2	780816	066769	003.48	073.18	0588.3	01.42	01.48	12.4	001.72	038.86	0442.3	02.09	17.43	002.78	056.32	0554.8	01.33	01.40	13.6
56017	3	781109	068312	003.64	070.30	0560.0	02.88	02.43	13.0	001.72	030.24	0435.7	04.34	18.15	003.04	052.61	0551.6	01.02	02.54	13.7
56017	4	790207	070161	003.75	070.55	0581.4	01.38	01.23	12.6	001.92	039.49	0454.9	02.26	16.95	003.19	056.49	0572.0	01.45	01.26	13.2
56018	0	780127	043966	003.44	052.00	0665.7	03.27	02.78	11.7	000.70	008.70	0554.5	04.94	15.55	002.54	044.17	0621.4	02.87	02.46	12.6
56018	M	780808	050650	002.32	036.69	0777.5	02.03	02.25	10.5	001.45	037.55	0502.4	02.99	15.67	001.73	022.33	0676.6	02.91	03.28	12.3
56018	1	780914	051738	002.22	043.76	0790.7	01.79	01.55	10.2	001.53	043.02	0521.6	02.64	14.93	001.99	041.51	0753.1	01.57	01.45	10.7
56018	2	781212	055643	001.83	035.59	0824.8	02.44	02.07	10.0	001.33	038.67	0537.9	03.32	14.71	001.89	029.91	0785.3	02.14	01.83	10.5
56018	3	790227	058367	002.02	031.47	0831.1	03.05	02.70	10.0	001.40	038.56	0552.1	03.10	14.37	001.54	031.93	0773.0	01.87	01.65	10.7
56018	4	790808	063624	001.85	028.38	0784.4	02.40	02.40	10.6	001.20	041.82	0526.1	04.10	14.89						
56019	0	780130	032262	002.59	042.28	0721.5	02.19	01.82	11.1	000.32	004.54	0559.7	02.93	15.62	002.92	045.94	0665.3	02.22	01.87	11.8
56019	M	780216	032617	000.84	008.80	0800.2	02.77	02.36	10.9	000.37	000.08	0586.8	03.89	15.10	000.47	003.24	0737.1	02.94	02.50	11.9
56019	1	780512	034672	001.01	010.45	0776.6	02.00	01.83	11.1	000.09	000.73	0571.1	02.82	15.49	000.73	004.17	0711.7	02.23	02.04	12.3
56019	2	780808	036722	000.86	008.59	0784.8	01.89	01.97	11.1	000.13	000.95	0553.1	02.32	15.98	000.89	009.19	0710.0	01.80	01.90	12.1
56019	3	781102	038834	001.12	014.35	0775.8	02.29	01.95	11.1	000.18	001.60	0559.4	03.12	15.77	001.61	024.22	0702.6	02.29	01.94	11.8
56019	4	790207	041246	000.98	008.88	0776.9	02.92	02.57	11.2	000.13	000.55	0539.0	04.12	16.41	000.92	005.74	0692.6	02.77	02.43	12.5
56020	0	780131	033222	000.67	004.48	0603.3	02.52	02.18	14.5	000.08	000.11	0471.7	03.83	18.78	000.45	002.72	0586.2	02.53	02.27	14.9
56020	M	780207	033332	000.93	010.21	0627.6	02.50	02.20	13.7	000.39	000.45	0496.7	03.94	17.82	000.40	005.81	0590.1	02.39	02.10	14.7
56020	1	780508	035060	000.99	007.94	0605.7	02.19	01.89	14.3	000.09	000.20	0485.1	03.41	18.26	000.54	005.09	0589.6	02.15	01.86	14.7
56020	2	780809	037866	001.27	008.10	0623.1	01.79	01.92	13.9	000.19	000.35	0491.8	02.74	17.99	000.69	005.80	0597.5	01.78	01.82	14.5
56020	3	781101	043321	000.96	005.12	0621.8	02.44	02.07	14.0	000.15	000.23	0474.1	03.52	18.67	000.49	002.35	0588.4	02.49	02.15	14.9
56020	4	790206	045378	002.11	020.53	0596.8	02.11	01.31	13.9	000.19	000.58	0461.7	03.09	19.14	000.85	006.65	0573.9	02.03	01.84	15.1
56021	0	780216	033139	002.54	072.96	0621.2	03.01	02.76	11.9	000.29	006.49	0458.9	05.84	18.87	001.96	068.62	0594.7	02.83	02.59	12.5
56021	M	780228	033379	000.59	004.06	0701.1	05.40	05.39	12.5	000.08	000.01	0457.2	06.99	19.38	000.17	000.23	0678.9	04.32	04.53	13.0
56021	1	780515	035676	001.04	012.51	0653.6	02.84	02.51	13.1	000.12	000.47	0464.8	05.53	19.03	000.27	001.55	0648.9	05.70	04.99	14.2
56021	2	780810	038425	002.56	051.17	0577.6	03.03	02.97	13.3	000.38	003.25	0450.8	05.45	19.40	001.63	043.70	0578.4	03.42	03.33	13.6
56021	3	781101	041743	002.40	056.72	0547.5	03.24	02.73	13.8	000.37	003.75	0440.0	05.88	19.84	001.98	053.75	0515.4	02.92	02.45	14.6
56021	4	790206	044321	008.07	010.64	0664.2	04.46	04.30	12.6	001.39	004.99	0495.6	05.80	17.46	004.33	003.71	0634.6	04.67	04.16	13.5
56022	0	780216	027083	001.99	036.24	0657.1	05.66	04.79	12.3	000.34	009.51	0534.3	06.37	16.11	002.73	064.03	0594.0	05.07	04.34	12.6
56022	M	780223	027457	001.34	019.25	0618.6	04.36	04.12	13.5	000.39	001.25	0484.9	05.18	18.20	000.43	006.88	0595.1	04.05	01.87	14.6
56022	1	780524	029149	001.01	018.41	0625.1	04.22	03.96	13.5	000.08	000.98	0503.8	05.33	17.54	000.41	009.37	0603.8	04.14	03.87	14.3
56022	2	780814	031389	000.54	004.25	0656.9	03.41	03.46	13.3	000.05	000.03	0498.8	03.71	17.77	000.21	000.53	0619.8	03.57	03.62	14.7
56023	0	780223	021267	001.54	013.59	0639.4	01.49	01.47	13.3	000.12	001.07	0511.1	01.57	17.28	000.77	010.49	0593.5	01.41	01.39	14.4
56023	M	780301	021363	001.45	015.24	0664.9	02.09	01.76	12.8	000.12	001.72	0533.4	01.85	16.53	000.89	014.42	0631.6	02.06	01.73	13.4
56023	1	780517	022033	001.31	011.23	0665.0	01.89	01.67	12.9	000.15	001.52	0522.0	02.01	16.90	000.57	008.57	0613.3	01.83	01.60	14.1
56023	2	780808	022966	001.84	017.51	0656.6	01.31	01.36	12.9	000.16	001.46	0524.7	01.33	16.81	001.01	007.88	0636.1	01.27	01.36	13.6
56023	3	781102	023863	001.16	009.09	0647.9	01.89	01.51	13.3	000.14	000.34	0524.1	01.90	16.89	000.44	005.07	0591.5	01.83	01.56	14.7
56023	4	790204	024330	001.62	014.87	0614.0	01.75	01.59	13.8	000.18	001.75	0483.9	01.53	18.20	001.42	018.96	0549.2	01.50	01.38	15.2
56024	0	780222	019007	001.32	031.06	0576.1	04.97	04.59	14.1	000.44	006.20	0468.6	06.24	18.48	001.27	027.94	0549.0	04.75	04.46	14.8
56024	M	780307	019198	001.39	022.24	0575.4	05.45	04.73	14.4	000.55	007.34	0480.9	06.66	17.94	001.28	011.04	0559.4	05.57	04.93	15.2
56024	1	780522	020304	001.26	024.31	0602.6	05.44	04.83	13.8	000.47	007.79	0495.5	06.51	17.41	001.19	017.30	0567.3	05.13	04.55	14.8
56024	2	780824	021363	001.60	009.70	0585.2	04.53	04.36	14.6	000.75	004.11	0468.3	05.34	18.59	001.75	007.77	0556.8	04.59	04.61	15.6
56024	3	781115	022837	001.43	026.17	0535.2	05.64	04.59	15.3	000.52	005.51	0446.7	06.61	19.41	001.37	020.79	0508.1	05.44	04.53	16.2
56024	4	790212	024057	001.69	032.23	0527.1	05.44	05.13	15.2	000.54	008.20	0444.1	06.63	19.33	001.48	023.65	0499.3	05.09	04.77	16.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
56025	0	780224	039892	001.25	032.21	0338.4	02.03	02.31	22.6	000.70	005.04	0217.3	05.26	38.99	000.81	007.94	0298.7	02.71	02.69	28.2
56025	M	780328	040222	001.12	009.16	0313.0	02.60	02.38	25.8	000.67	003.73	0230.8	04.76	37.14	001.16	007.29	0312.0	02.47	02.23	27.1
56025	1	780525	042439	001.17	008.51	0345.1	02.99	02.96	24.5	000.72	003.32	0242.7	05.30	35.45	001.07	005.65	0334.1	02.79	02.51	25.6
56025	2	780816	046194	001.06	008.84	0337.7	03.01	02.89	25.0	000.63	003.36	0237.1	05.30	36.29	000.94	005.72	0324.9	02.62	02.51	26.3
56025	3	781113	049631	001.15	009.46	0325.4	03.97	03.17	25.8	000.63	002.04	0234.9	06.18	36.93	000.95	005.73	0307.7	03.53	02.82	27.7
56025	4	790130	052243	001.13	008.30	0302.4	03.49	02.76	27.8	000.65	002.45	0204.8	05.35	42.08	000.98	004.53	0280.1	03.18	02.54	30.5
56026	0	780228	021493	003.06	052.41	0693.7	01.66	01.43	11.3	000.89	022.66	0543.1	02.01	15.25	003.80	063.22	0613.2	02.20	01.90	12.2
56026	M	780309	021612	000.95	015.10	0738.2	01.50	01.28	11.5	000.20	006.38	0549.2	01.36	15.84	000.46	004.85	0701.5	01.98	01.69	12.6
56026	1	780607	022535	001.13	017.91	0735.1	01.17	01.29	11.6	000.65	016.59	0548.1	01.49	15.39	002.03	039.76	0648.8	01.19	01.32	12.3
56026	2	780905	023447	002.19	035.59	0717.1	01.74	01.54	11.4	001.14	022.64	0563.2	02.07	14.72	001.90	033.93	0707.2	02.18	02.04	11.5
56026	3	781130	024264	001.99	018.09	0716.3	02.06	01.84	11.8	000.63	006.49	0554.5	02.04	15.65	002.51	035.60	0664.7	01.93	01.74	12.1
56026	4	790213	025271	002.96	027.25	0701.9	01.98	01.78	11.8	001.35	022.11	0554.4	02.21	14.94	003.79	048.99	0641.0	02.00	01.79	12.1
56027	0	780304	023873	004.11	086.91	0663.3	01.84	01.58	10.9	001.99	048.79	0520.3	01.48	14.70	004.29	093.09	0708.2	01.70	01.54	10.2
56028	0	780314	047652	002.87	022.61	0703.5	05.54	04.62	11.9	000.95	005.58	0515.1	07.46	16.83	002.92	013.16	0670.0	05.11	04.27	12.6
56028	M	780403	048115	001.69	006.44	0719.6	05.22	04.38	12.1	000.61	003.68	0524.8	07.84	16.65	001.59	007.54	0706.4	05.56	04.73	12.2
56028	1	780622	050767	002.92	008.03	0778.9	07.27	06.86	11.1	000.93	005.30	0527.2	09.80	16.47	002.93	008.64	0741.9	06.57	06.15	11.5
56028	2	780913	055918	002.50	006.63	0749.7	06.34	06.20	11.5	000.93	005.33	0532.5	08.87	16.31	003.06	005.34	0719.1	06.37	06.25	12.0
56028	3	781218	058067	004.93	006.58	0750.5	05.92	05.09	11.4	001.13	004.50	0527.5	08.42	16.48	004.60	006.93	0720.2	05.84	04.99	11.8
56028	4	790301	059478	002.87	020.23	0688.1	05.02	04.26	12.2	001.03	004.08	0495.7	07.66	17.55	002.58	015.54	0635.6	04.96	04.23	13.2
56029	0	780317	029528	000.63	013.29	0668.4	02.44	02.37	12.8	000.07	001.41	0454.8	03.26	19.40	000.27	003.65	0637.8	02.53	02.16	13.7
56029	M	780330	030164	000.72	014.06	0645.6	02.49	02.20	13.2	000.10	003.92	0486.0	03.42	18.01	000.31	006.13	0609.5	02.29	02.02	14.3
56029	1	780608	031338	000.92	016.14	0610.5	02.01	02.06	13.9	000.15	004.29	0469.8	02.87	18.59	000.49	010.54	0583.8	01.64	01.69	14.7
56029	2	780831	034038	000.78	009.41	0596.0	02.18	02.15	14.5	000.17	002.31	0455.1	03.38	19.31	000.75	010.96	0575.6	01.96	01.91	14.9
56029	3	781129	035445	002.25	040.15	0570.1	01.57	01.45	13.8	000.29	006.87	0449.3	02.39	19.24	002.16	043.34	0534.2	01.29	01.20	14.5
56029	4	790220	036597	001.34	022.95	0633.4	01.57	01.33	13.2	000.20	004.91	0473.2	02.02	18.42	000.82	010.43	0599.0	01.37	01.18	14.3
56030	0	780328	032126	001.47	016.20	0315.7	02.86	02.58	25.6	000.70	006.08	0248.1	04.90	34.12	001.65	033.80	0293.7	02.47	02.20	25.1
56030	M	780407	032350	001.71	014.10	0316.8	03.20	02.76	25.8	000.73	011.93	0220.9	04.29	36.65	001.79	029.47	0298.5	02.26	01.97	25.3
56030	1	780607	034550	001.63	007.83	0311.5	02.73	02.80	27.0	000.46	001.86	0223.2	01.46	38.97	001.41	004.15	0301.7	02.41	02.32	28.3
56030	2	780905	037278	001.53	015.50	0326.6	02.93	02.77	24.9	000.55	002.95	0235.7	04.24	36.63	001.44	007.20	0319.0	02.97	02.83	26.4
56030	3	781205	040170	001.93	024.24	0303.6	03.71	03.16	25.5	001.32	030.39	0226.9	04.65	31.80	001.83	028.93	0284.6	03.17	02.69	26.4
56030	4	790221	043245	001.93	038.11	0286.7	02.75	02.37	25.1	000.82	008.97	0214.1	04.41	38.42	001.50	018.13	0283.0	02.90	02.50	28.0
56031	0	780328	039877	000.87	021.34	0913.2	04.77	04.22	09.3	000.30	003.94	0631.5	06.49	13.89	000.70	013.89	0866.0	05.10	04.53	09.9
56031	M	780410	040144	000.74	018.63	0900.0	04.72	04.37	09.5	000.27	003.85	0607.4	06.55	14.44	000.60	012.94	0846.4	04.32	04.23	10.2
56031	1	780613	042838	001.15	020.22	1052.4	06.61	06.30	09.2	000.26	003.95	0600.1	06.59	14.61	000.71	015.25	0873.5	05.31	05.08	09.8
56031	2	780908	045779	000.70	019.39	0913.2	04.78	04.51	09.4	000.29	005.25	0625.1	06.60	13.98	000.93	022.76	0888.8	04.45	04.26	09.5
56031	3	781205	049821	002.07	018.00	0905.1	05.39	04.56	09.4	000.27	002.66	0643.0	07.89	13.68	001.20	015.48	0869.4	05.58	04.71	09.8
56031	4	790221	051794	000.84	022.28	0906.0	05.14	04.51	09.4	000.42	006.81	0662.8	09.15	13.14	000.73	019.87	0884.9	05.57	04.97	09.6
56032	0	780331	041888	004.73	096.66	0571.9	02.28	01.92	12.0	002.53	043.88	0386.8	02.82	19.12	004.94	107.96	0541.7	02.09	01.77	12.2
56032	M	780414	042357	003.19	036.41	0515.8	04.00	03.59	15.2	002.38	022.44	0414.8	04.93	19.42	003.41	040.61	0488.8	03.39	03.15	15.7
56032	1	780619	045158	003.07	034.74	0502.6	04.07	03.94	15.6	001.52	016.23	0387.7	04.48	21.21	003.16	035.03	0485.9	03.59	03.47	16.0
56032	2	780912	049552	003.26	037.22	0509.4	04.59	04.40	15.3	001.83	015.55	0399.6	05.16	20.63	003.15	033.02	0470.8	04.12	03.92	16.6
56032	3	781207	052688	002.71	026.19	0480.5	05.47	04.55	16.7	001.27	010.40	0377.5	06.70	22.29	002.41	019.39	0454.7	05.13	04.22	17.9
56032	4	790228	054770	002.90	028.76	0445.0	04.97	04.30	17.8	001.07	008.95	0360.4	05.66	23.47	002.57	021.22	0413.9	04.57	03.95	19.4
56033	0	780405	040629	003.11	026.09	0377.4	02.68	02.33	20.7	000.44	003.06	0268.7	03.71	32.25	002.04	020.12	0366.1	02.55	02.22	21.9
56033	M	780418	041050	001.78	012.16	0397.0	02.29	02.19	21.0	000.23	001.86	0275.3	02.72	31.80	000.92	006.96	0382.2	02.14	02.03	22.3
56033	1	780619	042879	001.22	008.18	0378.8	02.31	02.08	22.4	000.26	001.87	0258.6	02.87	33.80	001.07	008.00	0389.4	02.50	02.26	21.8
56034	0	780727	041343	001.17	019.75	0458.0	03.00	03.09	18.0	000.28	007.01	0354.7	03.29	24.19	001.02	015.59	0430.6	02.41	02.37	19.3
56034	M	780813	043416	001.48	024.74	0493.5	03.15	03.44	15.5	000.37	007.99	0361.7	03.22	23.62	001.08	014.68	0435.8	02.53	02.72	19.1
56034	1	781101	045042	001.82	022.46	0455.5	03.93	03.33	17.8	000.48	006.12	0364.5	04.48	23.61	001.32	014.34	0431.8	03.47	02.90	19.3
56034	2	790115	047242	015.11	016.51	0510.6	03.55	02.96	15.2	005.75	011.06	0430.0	05.66	19.04	011.01	036.12	0476.1	02.86	02.43	15.6
56034	3	790326	048628	002.84	039.79	0444.3	03.68	03.25	17.2	000.82	011.54	0358.0	04.77	23.42	003.39	030.12	0429.4	03.25	02.89	18.1
56035	0	780815	082998	003.34	014.81	0818.5	01.65	01.71	10.4	000.78	002.69	0561.2	02.73	15.62	003.40	008.32	0795.8	01.62	01.67	10.8
56035	M	780830	083629	000.79	026.32	0974.1	01.88	01.88	09.7	000.42	004.80	0571.4	02.32	15.28	000.62	014.06	0856.6	01.76	01.71	10.3
56035	1	781115	085661	000.91	018.41	0531.3	02.06	01.71	09.2	000.43	008.67	0584.7	02.91	14.79	000.55	007.93	0850.6	02.37	01.99	10.2
56035	2	790212	088064	001.99	046.21	0884.9	01.77	01.51	09.2	000.50	011.35	0562.9	02.34	15.23	001.00	027.95	0811.0	01.83	01.57	10.3
56035	3	790820	094187	001.48	006.61	0722.1	02.24	02.22	12.0	000.63	003.05	0525.5	03.16	16.66						
56035	4	791112	096715	001.27	007.78	0750.7	02.89	02.47	11.0	000.60	003.24	0535.8	04.07	16.34						
56036	0	780825	041837	001.44	005.61	0381.6	03.08	02.96	22.5	000.54	001.95	0242.0	03.39	35.93	001.11	003.68	0369.2	03.53	03.36	23.4
56036	M	781018	043010	001.31	005.42	0355.4	02.35	02.06	24.1	000.45	001.86	0234.3	03.01	37.16	001.06	003.74	0342.7	02.53	02.27	25.1
56036	1	790102	045826	023.57	005.92	0315.8	05.14	04.08	22.2	019.97	002.12	0207.4	05.38	32.35	030.10	003.77	0293.4	05.76	04.56	22.4
56036	2	790315	048070	001.32	006.11	0344.4	02.63	02.35	24.8	000.63	002.06	0230.7	03.73	37.59	001.17	004.67	0331.2	02.74	02.45	25.9
56037	0	781002	046890	004.01	127.65	0322.3	00.57	00.54	15.6	002.18	084.07	0242.4	00.71	23.25	003.01	087.98	0325.6	00.81	00.76	18.7
56037	M	781013	047042	003.59	106.95	0334.1	00.68	00.53	17.3	002.13	083.36	0245.7	00.82	23.42	002.67	074.46	0325.3	00.81	00.74	19.6
56037	1	781227	049580	037.74	075.88	0371.8	01.71	01.40	14.5	028.64	055.14	0302.3	02.01	18.48	028.58	048.54	0361.2	01.96	01.61	16.7
56037	2	790314	051343	003.84	097.84	0319.1	00.64	00.58	19.3	002.20	079.20	0225.8	00.74	24.82	003.27	083.35	0308.5	00.58	00.62	19.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
56038	0	781006	034546	000.93	024.13	0595.9	03.91	03.55	13.9	000.16	004.37	0547.4	04.31	15.98	000.93	020.99	0565.5	03.68	03.38	14.7
56038	M	781101	034876	001.02	015.11	0564.1	04.44	03.73	15.0	000.25	004.63	0498.5	04.75	17.51	001.00	012.74	0529.2	04.10	03.46	16.0
56038	1	790115	035803	001.01	016.08	0569.2	01.71	01.41	14.8	000.15	005.35	0482.8	04.51	18.04	000.94	016.12	0539.7	03.99	03.27	15.6
56038	2	790326	036562	000.92	017.50	0572.6	04.34	03.92	14.7	000.35	007.90	0485.8	04.68	17.76	001.35	024.99	0502.6	03.80	03.34	16.2
56038	3	790828	036980	001.29	016.72	0525.2	03.05	03.02	16.0	000.40	007.36	0466.1	03.59	18.52						
56038	4	791016	037154	001.11	015.20	0570.3	03.27	03.13	14.8	000.32	003.88	0506.3	03.73	17.27						
56039	0	781026	042621	001.52	020.00	0530.0	08.16	07.04	15.7	000.16	001.71	0397.3	10.55	22.15	001.20	016.54	0496.5	07.49	06.46	16.8
56039	M	781102	042729	002.35	005.07	0536.4	08.12	06.96	15.1	001.08	000.21	0410.2	10.92	21.43	001.93	001.03	0503.9	07.55	06.41	17.3
56039	1	790116	045768	000.92	011.47	0515.4	07.87	06.53	15.4	000.11	000.41	0371.9	11.06	23.78	000.62	003.20	0492.2	07.34	06.12	17.7
56039	2	790327	046040	001.58	021.51	0503.8	05.63	05.02	16.3	000.30	003.71	0373.9	07.51	23.29	001.40	011.76	0477.5	04.85	04.29	17.7
56039	3	790809	046963	000.46	006.69	0478.9	05.15	05.51	18.1	000.10	000.69	0342.2	07.26	25.81						
56039	4	791112	047696	000.91	013.71	0509.4	05.83	04.97	15.6	000.12	000.73	0373.0	08.80	23.68						
56040	0	781221	089477	006.35	111.51	0642.3	02.38	02.11	10.6	002.65	058.44	0503.2	02.25	14.70	005.79	108.57	0608.0	02.17	01.92	11.1
56040	M	790108	090179	003.46	051.01	0694.5	02.53	02.00	11.3	002.08	048.51	0490.9	02.38	15.46	003.61	061.03	0631.6	02.55	02.11	12.0
56040	1	790326	092774	002.23	046.31	0680.5	02.19	01.95	11.7	001.40	041.02	0491.8	02.09	15.82	001.70	045.85	0629.1	02.33	02.06	12.5
66001	0	771005	014295	001.89	032.67	0566.8	02.24	01.95	14.2	000.13	001.62	0435.6	02.99	20.22	001.18	018.17	0541.2	02.19	01.93	15.4
66001	M	771022	014431	001.26	019.50	0578.9	02.16	02.05	14.5	000.14	001.67	0447.3	02.92	19.69	000.73	010.76	0554.2	01.93	01.75	15.4
66001	1	780317	015892	001.25	016.58	0597.8	02.53	02.18	14.1	000.07	000.32	0461.1	03.59	19.20	000.32	004.96	0590.8	02.47	02.26	14.7
66001	2	780602	017816	001.11	016.00	0575.0	02.46	02.25	14.7	000.08	000.48	0436.6	03.09	20.27	000.32	004.02	0546.3	02.25	02.06	16.0
66001	3	780823	019135	001.31	020.72	0581.9	01.93	01.83	14.3	000.10	000.89	0446.6	02.81	19.78	000.60	007.15	0563.7	02.05	01.91	15.3
66001	4	781116	020220	001.87	026.48	0645.4	02.46	02.17	12.8	000.09	000.40	0472.1	02.81	18.75	001.01	009.45	0582.2	01.92	01.70	14.7
66002	0	771025	020060	000.69	007.24	0540.5	04.07	03.87	15.0	000.32	000.87	0362.2	04.75	24.33	000.37	001.32	0515.9	03.81	03.62	17.0
66002	M	771117	020708	000.55	006.73	0518.2	04.54	03.94	15.7	000.30	000.83	0371.3	05.60	23.74	000.40	002.32	0493.1	03.78	03.27	17.8
66002	1	780406	026050	000.68	006.22	0532.2	04.56	04.10	16.3	000.29	001.01	0371.1	05.18	23.74	000.49	001.98	0498.0	04.26	03.82	17.6
66002	2	780530	027501	000.85	007.27	0512.2	05.00	04.35	16.8	000.23	001.07	0367.5	06.00	23.98	000.41	002.20	0490.6	04.39	03.92	17.9
66002	3	780818	029794	000.81	005.81	0509.5	02.97	02.88	17.0	000.31	001.22	0355.8	03.42	24.72	000.63	003.05	0486.4	03.92	03.76	17.9
66002	4	781108	030708	000.87	005.53	0549.2	03.40	03.08	15.8	000.30	001.46	0385.0	04.58	22.84	000.67	003.24	0525.3	03.04	02.80	16.6
66003	0	771022	020168	003.96	076.03	0581.0	02.37	02.23	12.4	000.73	004.89	0453.7	03.32	19.12	004.53	073.34	0542.4	02.57	02.39	13.1
66003	M	780105	021070	002.66	009.53	0656.3	03.17	02.83	13.0	000.62	000.94	0466.9	03.31	18.85	001.82	005.13	0593.8	02.70	02.41	14.5
66003	1	780330	022544	003.44	038.12	0610.2	02.47	02.26	13.0	000.69	002.17	0470.9	03.16	18.61	003.65	022.79	0573.8	02.60	02.37	14.2
66003	2	780614	024930	002.48	026.42	0599.0	02.48	02.25	13.7	000.56	001.99	0452.7	02.92	19.38	002.75	020.80	0563.6	02.43	02.21	14.6
66003	3	780911	025676	002.66	033.89	0607.6	02.57	02.42	13.2	000.68	002.61	0460.9	03.26	18.98	002.92	032.15	0585.1	02.64	02.51	13.7
66003	4	781205	026368	003.31	034.34	0585.1	02.67	02.23	13.7	000.60	002.53	0449.3	03.35	19.48	003.05	030.89	0563.5	02.86	02.39	14.2
66004	0	771102	018701	001.65	052.89	0684.1	03.67	03.11	11.5	000.23	005.20	0495.8	06.44	17.57	001.63	051.09	0660.1	03.60	03.08	11.8
66005	0	771114	032290	001.80	035.19	0473.1	02.10	01.85	16.6	000.22	002.23	0370.3	01.92	23.68	001.36	026.12	0447.7	01.89	01.66	17.9
66005	M	780209	036293	001.10	017.32	0590.3	01.76	01.47	14.3	000.39	004.51	0471.3	01.64	18.53	001.23	028.03	0517.5	01.55	01.32	15.6
66005	1	780410	039190	002.76	047.29	0474.1	02.81	02.48	15.9	000.32	002.77	0412.6	02.80	21.21	002.71	044.17	0438.1	02.64	02.37	17.1
66005	2	780706	045495	003.05	054.37	0470.0	02.03	02.01	15.7	000.50	004.11	0392.6	02.24	22.14	003.17	057.02	0419.5	01.93	01.90	17.0
66005	3	780920	048684	002.81	055.07	0502.2	02.22	02.11	14.8	000.40	003.87	0433.7	02.52	20.11	002.94	054.43	0445.5	02.17	02.07	16.4
66005	4	781219	053671	002.97	052.27	0465.0	02.84	02.30	15.9	000.25	002.90	0402.9	02.62	21.72	002.51	042.76	0426.2	02.49	02.04	17.6
66006	0	771123	015078	003.29	048.39	0452.1	02.89	02.58	16.5	000.50	004.89	0384.3	02.80	22.53	002.76	039.31	0425.3	02.43	02.17	17.8
66006	M	780111	015974	000.91	008.26	0507.1	01.99	01.59	17.0	000.16	002.69	0372.7	01.67	23.50	000.97	009.60	0485.9	01.57	01.33	17.5
66006	1	780412	017931	001.10	013.48	0468.1	00.92	00.79	13.0	000.26	003.84	0374.1	01.77	23.28	000.94	008.64	0445.5	01.79	01.54	19.1
66006	2	780712	020565	001.36	018.64	0439.5	02.70	02.52	18.7	000.25	001.90	0374.1	02.73	23.47	001.08	009.16	0425.7	02.46	02.30	19.2
66006	3	781009	022731	001.43	015.85	0446.2	03.02	02.97	18.6	000.26	001.82	0374.3	02.81	23.46	001.09	008.37	0424.0	02.87	02.81	20.1
66006	4	790126	025013	001.60	018.08	0433.9	03.32	02.78	19.0	000.26	001.30	0348.9	03.38	25.21	001.23	008.99	0417.6	03.15	02.64	20.3
66007	0	771129	016459	002.25	028.17	0482.0	02.43	02.08	15.6	001.25	025.21	0393.7	02.56	20.28	002.86	033.83	0451.9	01.99	01.71	17.2
66008	0	771129	013183	004.25	061.59	0422.9	02.71	02.34	16.6	001.00	011.15	0367.4	03.58	22.85	005.07	059.09	0396.2	02.41	02.09	17.5
66008	M	771212	013285	001.83	028.67	0447.0	02.05	01.86	17.8	000.36	018.65	0372.1	02.47	21.93	003.10	027.66	0412.7	01.67	01.56	19.3
66008	1	780404	015418	001.71	036.68	0459.0	02.51	02.16	17.0	001.10	030.13	0375.6	02.41	20.80	001.81	041.40	0429.4	02.02	01.76	17.7
66008	2	780713	016721	001.18	023.19	0465.1	02.03	02.25	17.6	000.47	012.39	0368.9	02.26	22.74	001.55	025.73	0424.2	01.51	01.65	18.8
66008	3	781009	019140	001.39	019.69	0445.2	02.27	02.26	18.5	000.40	006.01	0376.9	02.72	22.88	001.18	019.24	0425.8	01.93	01.91	19.2
66008	4	790122	020852	001.48	014.65	0436.5	02.74	02.28	19.1	000.40	003.93	0356.3	03.12	24.38	001.07	013.34	0414.0	02.19	01.85	20.2
66009	0	771212	058247	001.59	005.09	0304.7	01.11	01.02	27.9	000.98	013.95	0224.6	01.96	35.53	000.92	004.01	0293.8	01.15	01.04	29.2
66009	M	780125	060533	001.07	004.76	0307.8	01.61	01.38	27.8	000.38	001.42	0234.9	02.19	37.35	000.99	003.91	0283.5	01.58	01.37	30.2
66009	1	780427	066056	000.65	005.70	0305.0	01.69	01.63	27.7	000.07	001.90	0257.9	02.27	33.96	000.61	004.55	0317.8	01.71	01.64	27.1
66009	2	780803	070049	002.87	016.21	0297.6	01.29	01.27	25.7	000.08	001.52	0231.2	01.77	37.93	001.42	005.91	0288.8	01.38	01.36	29.3
66009	3	781207	072097	001.15	006.06	0316.3	01.84	01.50	25.9	000.36	001.54	0230.1	02.82	38.10	000.35	003.53	0315.9	01.98	01.64	27.4
66009	4	790316	073963	000.97	005.86	0345.7	02.01	01.76	24.5	000.34	001.68	0262.0	03.11	33.49	001.29	004.85	0326.6	02.07	01.77	26.2
66010	0	771213	025848	001.68	038.63	0448.3	02.29	02.21	17.2	000.80	010.67	0399.2	02.31	21.19	001.75	036.19	0414.0	01.95	01.91	18.6
66010	M	771229	029371	001.66	021.35	0480.7	03.45	02.96	17.1	000.61	005.26	0412.5	03.18	20.98	001.39	012.21	0459.0	03.16	02.63	18.3
66010	1	780505	035436	002.05	033.24	0436.0	03.00	02.55	17.9	000.73	008.47	0382.4	02.83	22.28	001.68	025.03	0424.0	02.63	02.21	18.9
66010	2	780803	038186	001.90	030.73	0445.4	03.88	03.96	17.7	001.04	011.35	0376.4	05.23	22.31	002.07	031.87	0412.1	03.31	03.31	18.9
66010	3	781027	041697	001.43	026.98	0511.9	01.70	01.54	15.9	000.44	008.72	0459.1	01.79	18.70	001.32	018.06	0494.8	01.74	01.52	16.8
66010	4	790131	045658	002.13	059.54	0431.3	01.55	01.25	15.7	000.84	018.29	0384.9	01.69	21.30	002.38	063.99	0400.6	01.47	01.15	17.4

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

EPA NU	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
66011	0	771214	016434	002.14	032.12	0396.1	02.25	02.07	19.6	000.68	003.48	0302.3	02.30	28.61	002.03	028.14	0390.4	02.02	01.71	20.1
66011	M	771228	016674	002.05	015.20	0406.0	02.34	01.39	23.3	000.71	002.44	0264.1	02.30	32.82	001.89	010.28	0379.4	02.09	01.69	22.3
66011	1	780510	023413	002.30	017.60	0389.8	03.41	03.34	20.9	000.68	002.30	0293.5	03.71	29.63	002.22	013.90	0359.4	03.05	02.73	22.8
66011	2	780804	024856	002.74	025.76	0371.9	05.70	05.24	21.1	000.75	002.79	0265.1	06.77	32.62	002.31	022.17	0353.5	05.15	04.71	22.4
66011	3	781101	026354	003.77	048.17	0321.9	05.35	04.50	21.7	001.13	009.62	0293.3	08.54	28.42	002.99	043.40	0305.6	05.22	04.40	23.1
66011	4	790131	027314	001.76	023.67	0377.7	05.46	04.35	21.1	000.89	007.32	0277.7	07.27	30.37	001.81	021.16	0358.4	05.04	03.99	22.3
66012	0	780126	029116	001.73	040.72	0351.4	01.39	01.21	21.1	000.41	017.92	0267.6	01.74	29.85	002.30	051.83	0338.8	00.60	00.50	20.7
66013	0	771229	024177	009.31	068.45	0506.7	02.57	02.13	13.8	000.92	002.79	0440.0	03.74	19.83	007.80	065.36	0459.1	02.45	02.04	15.1
66013	M	780109	024265	001.31	002.74	0623.4	06.33	05.47	14.0	000.66	000.90	0458.5	08.73	19.19	001.10	001.31	0584.9	06.33	05.49	15.3
66013	1	780414	025192	001.10	002.70	0628.5	06.11	05.72	13.9	000.46	000.95	0469.5	08.33	18.77	000.78	001.30	0586.1	06.00	05.62	15.0
66013	2	780707	026216	000.90	002.40	0626.6	05.93	05.94	14.0	000.48	001.08	0462.0	08.20	19.06	000.73	001.29	0590.8	05.75	05.67	14.9
66013	3	781002	027016	000.88	003.05	0615.9	06.60	06.08	14.1	000.42	001.06	0478.8	09.00	18.40	000.68	001.13	0591.1	06.80	06.30	14.9
66013	4	781229	027755	000.93	002.24	0618.1	07.18	05.76	14.2	000.53	000.97	0451.5	09.64	19.50	000.82	001.86	0593.9	06.48	05.18	14.7
66014	0	771229	025879	001.40	023.12	0478.8	04.82	04.06	17.1	000.25	003.07	0406.4	04.57	21.52	001.20	017.55	0452.1	03.92	03.26	18.3
66014	M	780121	026461	000.88	008.35	0503.4	03.41	03.02	17.1	000.17	001.99	0427.2	03.59	20.58	000.97	006.79	0476.3	03.25	02.90	18.1
66014	1	780428	031581	000.82	008.11	0520.2	03.32	02.98	15.6	000.16	001.56	0464.0	03.76	18.99	000.91	005.31	0485.3	03.18	02.83	17.8
66014	2	780803	034678	001.91	033.00	0458.6	05.47	05.32	17.2	000.58	004.12	0389.2	06.56	22.31	001.91	028.46	0418.3	05.37	05.30	18.9
66014	3	781026	037207	001.78	033.90	0467.7	06.68	05.68	15.8	000.45	003.80	0407.2	07.78	21.39	001.76	028.98	0443.4	06.61	05.63	17.9
66014	4	790126	040391	001.76	037.31	0431.1	05.67	04.74	17.9	000.41	003.71	0375.8	06.86	23.16	001.65	029.16	0400.3	05.86	04.91	19.6
66015	0	771230	026287	002.39	028.60	0311.9	02.69	02.32	24.3	001.13	004.12	0230.1	03.88	36.93	001.56	008.35	0312.1	03.00	02.61	26.8
66015	M	780109	026421	002.40	016.26	0332.1	02.74	02.43	24.3	001.38	003.31	0240.7	03.98	35.43	002.60	004.36	0321.7	02.99	02.75	26.3
66015	1	780504	028723	002.52	015.60	0336.9	03.09	02.55	24.0	001.20	002.72	0242.3	04.24	35.41	002.44	004.57	0328.8	03.25	02.81	25.7
66015	2	780727	031260	004.36	032.74	0320.6	02.63	02.51	23.0	002.82	012.00	0228.0	03.23	34.67	003.89	034.13	0305.5	02.59	02.53	23.3
66015	3	781023	032646	005.62	019.39	0340.7	02.94	02.55	22.8	001.97	005.17	0240.7	03.49	34.77	005.13	018.53	0324.5	02.76	02.43	23.9
66015	4	790129	034104	004.29	030.47	0321.7	02.34	01.98	23.1	002.51	009.46	0230.7	02.18	34.98	004.99	025.58	0322.6	02.42	01.95	23.4
66016	0	780105	029887	007.31	110.41	0385.0	03.63	03.09	15.2	001.30	017.55	0356.1	01.76	22.87	006.48	099.05	0476.5	03.70	03.21	13.5
66016	M	780130	030384	001.83	047.60	0517.6	01.80	01.50	14.8	000.16	004.58	0436.0	01.88	19.98	001.67	040.48	0478.9	01.53	01.37	16.1
66016	1	780428	033841	002.61	072.86	0520.3	01.72	01.55	13.8	000.33	009.93	0449.6	01.98	19.02	003.48	099.37	0443.9	01.47	01.40	14.5
66016	2	780727	036665	002.70	078.04	0623.5	01.90	01.77	11.8	000.26	008.63	0447.7	01.59	19.19	002.04	064.76	0478.2	01.45	01.35	15.1
66016	3	781013	039075	002.65	074.18	0496.6	01.76	01.47	14.3	000.27	009.18	0451.0	02.00	19.02	002.30	072.22	0462.3	01.66	01.38	15.2
66016	4	790129	042253	002.13	055.47	0530.1	01.46	01.17	14.2	000.22	005.70	0440.0	01.14	19.72	002.20	053.60	0488.1	01.55	01.25	15.3
66017	0	780106	028251	001.42	016.34	0345.3	03.93	03.50	23.6	000.93	005.32	0244.6	04.73	34.65	001.56	020.92	0315.0	03.57	03.22	25.1
66017	M	780207	028704	001.42	009.16	0339.0	03.33	02.99	24.8	000.95	003.24	0240.5	04.40	35.67	001.41	006.91	0319.7	03.35	02.99	26.4
66017	1	780524	029780	003.81	010.22	0332.0	01.51	01.28	24.6	000.94	009.42	0239.3	02.64	34.49	002.60	003.41	0328.2	01.42	01.22	25.9
66017	2	780822	029848	001.62	009.03	0350.5	03.34	03.27	24.0	000.90	002.91	0243.5	03.79	35.34	001.56	006.83	0318.7	03.23	03.14	26.5
66018	0	780110	017494	001.12	010.12	0648.5	04.00	03.46	13.3	000.24	001.00	0459.2	07.42	19.21	000.74	007.04	0627.1	04.27	03.71	13.8
66019	0	780125	005613	000.90	009.33	0647.9	02.33	02.04	13.3	000.19	004.46	0480.4	02.68	18.17	001.32	022.25	0572.8	01.51	01.32	14.6
66020	0	780130	027986	000.84	008.15	0737.4	05.18	04.34	11.8	000.12	000.54	0515.4	05.90	17.17	000.44	002.23	0703.5	05.20	04.37	12.5
66020	M	780208	028080	000.70	007.44	0724.1	08.13	07.74	12.0	000.15	000.69	0517.1	09.88	17.10	000.79	013.37	0694.8	06.92	06.62	12.3
66020	1	780504	031949	001.72	025.43	0746.5	05.77	05.32	11.2	000.19	001.44	0553.6	07.02	15.94	001.15	016.67	0699.7	05.31	04.56	12.1
66020	2	780802	035112	001.63	034.54	0700.9	01.87	02.04	11.7	000.18	002.56	0539.2	03.31	16.31	001.63	036.32	0686.0	02.01	02.19	11.8
66020	3	781031	039386	002.14	035.14	0712.7	03.23	02.63	11.4	000.26	002.50	0535.0	04.91	16.43	001.70	030.04	0692.2	03.25	02.68	11.9
66020	4	790130	041998	002.73	034.98	0674.1	03.44	02.75	12.0	000.76	011.87	0492.9	03.53	17.26	004.16	075.10	0591.4	02.79	02.25	12.2
66021	0	780201	041026	002.65	057.36	0610.1	02.86	02.52	12.5	000.69	009.05	0476.8	05.19	17.98	002.33	052.69	0570.6	02.82	02.53	13.4
66021	M	780214	041584	001.50	008.28	0725.2	03.53	03.17	11.9	000.15	000.38	0500.4	04.50	17.69	000.78	002.30	0664.5	03.71	03.41	13.2
66021	1	780517	047800	003.17	008.46	0726.5	02.79	02.49	11.8	000.42	000.40	0493.8	05.56	17.89	001.82	001.29	0677.7	03.38	03.06	12.9
66021	2	780804	053211	002.98	013.40	0705.8	03.18	02.99	12.0	000.54	002.14	0472.0	05.51	18.59	002.23	011.79	0646.6	03.12	03.02	13.2
66021	3	781027	056646	004.50	011.15	0670.0	03.01	02.61	12.6	000.77	003.62	0488.7	06.18	17.85	002.80	002.96	0637.4	03.19	02.79	13.6
66022	0	780203	026975	002.77	051.12	0595.7	01.83	01.73	13.0	000.28	005.12	0473.5	03.16	18.38	001.27	025.54	0589.4	01.64	01.56	14.0
66022	M	780221	027139	001.93	035.23	0641.5	02.27	02.36	12.6	000.16	002.94	0512.7	04.00	17.13	000.73	012.43	0631.4	02.04	01.83	13.5
66022	1	780510	028649	002.10	037.80	0613.2	01.99	01.72	13.1	000.19	003.84	0484.9	03.35	18.04	000.98	023.02	0588.6	01.72	01.51	14.1
66022	2	780804	034559	001.15	017.13	0635.5	02.03	02.30	13.3	000.10	001.10	0484.9	03.40	18.21	000.70	011.12	0606.8	01.82	01.72	14.1
66022	3	781027	036387	001.39	024.11	0635.8	02.35	02.09	13.0	000.15	003.10	0494.8	03.56	17.73	000.76	011.92	0580.1	01.90	01.70	14.7
66022	4	790126	037916	001.93	030.18	0606.9	02.19	01.83	13.4	000.16	002.22	0513.8	04.89	17.13	000.78	013.98	0603.6	02.34	01.95	14.1
66023	0	780216	029445	001.37	005.15	0616.2	04.51	03.86	14.1	000.21	000.29	0469.3	05.45	18.85	001.02	001.56	0559.9	04.05	03.49	15.6
66023	M	780227	029696	001.33	011.90	0607.1	06.25	05.37	14.1	000.26	001.50	0440.2	07.48	20.00	000.56	003.28	0570.2	06.32	05.76	15.3
66023	1	780512	032660	000.78	004.37	0566.6	03.90	03.46	15.4	000.25	001.53	0458.2	05.00	19.22	000.49	002.49	0549.7	03.83	03.62	15.9
66023	2	780814	037383	000.93	006.97	0578.2	03.17	03.45	15.0	000.35	002.92	0432.3	03.96	20.25	000.69	005.31	0547.3	02.95	03.20	15.9
66023	3	781106	040090	001.12	007.31	0572.7	03.42	02.90	15.1	000.37	001.49	0444.1	04.69	19.81	000.65	002.65	0522.1	03.20	02.71	16.7
66023	4	790206	042543	001.76	010.34	0569.1	03.41	03.32	15.3	000.47	002.81	0431.7	04.28	20.26	001.19	004.08	0531.2	03.37	03.02	16.3
66024	0	780221	032001	001.88	046.71	0447.1	06.63	06.34	15.8	000.22	004.42	0359.5	09.74	24.16	001.62	038.57	0432.3	05.41	05.28	17.8
66024	M	780313	033191	001.67	033.74	0465.2	06.44	05.47	15.8	000.23	004.43	0372.8	08.05	23.32	001.52	023.58	0442.0	05.25	04.41	18.3
66024	1	780609	037766	001.69	037.56	0417.4	05.93	05.58	18.4	000.30	004.34	0352.9	07.86	24.59	001.51	035.09	0390.1	05.04	04.83	19.7
66024	2	780901	043381	002.09	039.01	0443.6	06.51	06.32	17.3	000.35	004.39	0368.2	09.34	23.57	002.01	037.81	0404.3	05.21	05.21	18.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
66025	0	780222	010276	004.62	035.72	0566.9	02.23	02.39	13.9	000.13	000.96	0447.3	03.51	19.74	000.45	004.15	0562.8	02.39	02.29	15.5
66025	M	780315	010481	001.31	012.36	0566.7	02.34	01.37	15.0	000.09	000.20	0462.1	03.28	19.17	000.27	001.29	0536.4	02.13	01.78	16.4
66025	1	780524	011420	000.80	010.90	0551.9	02.22	01.92	15.5	000.11	001.42	0439.7	03.02	20.05	000.23	002.20	0532.8	02.01	01.75	16.5
66025	2	780814	013525	000.96	012.14	0564.0	01.96	02.09	15.1	000.10	000.74	0481.5	03.79	18.36	000.30	003.13	0533.8	01.47	01.56	16.4
66025	3	781109	014740	000.97	012.27	0547.5	02.04	01.72	15.6	000.09	000.36	0431.5	03.04	20.51	000.33	001.84	0535.4	02.05	01.72	16.4
66025	4	790208	015818	001.07	013.67	0538.5	01.64	01.51	15.7	000.17	003.54	0421.7	02.18	20.73	000.53	009.94	0493.1	01.07	00.97	17.3
66026	0	780329	016406	002.66	029.60	0447.5	01.74	01.56	17.7	001.04	007.75	0326.6	02.06	25.92	002.32	034.58	0384.5	01.37	01.23	19.8
66026	M	780412	016682	001.74	014.02	0415.0	06.44	05.56	23.0	000.68	002.46	0330.0	08.21	26.39	001.47	010.61	0380.8	06.14	05.42	22.3
66026	1	780616	017850	001.80	014.57	0394.7	01.48	01.33	20.9	000.80	003.46	0308.8	02.06	28.00	001.68	015.57	0379.9	01.39	01.24	21.6
66026	2	780912	019737	002.18	023.09	0409.8	01.64	01.52	19.6	001.08	005.79	0309.3	02.56	27.55	001.89	018.20	0387.0	01.61	01.49	21.0
66026	3	781221	021541	002.19	025.28	0385.6	01.65	01.45	20.5	001.26	012.09	0297.2	02.35	27.69	002.01	028.43	0351.1	01.50	01.32	22.3
66026	4	790313	022962	002.25	033.08	0363.1	01.67	01.38	21.3	001.54	024.62	0275.0	02.06	27.84	002.31	039.80	0321.3	01.35	01.12	22.6
66027	0	780307	013504	002.00	048.45	0497.2	03.29	02.91	15.3	000.24	003.20	0422.5	03.46	20.71	002.00	048.85	0450.0	03.19	02.85	16.6
66027	M	780316	013821	000.80	006.23	0500.5	02.58	02.12	17.3	000.08	000.52	0402.0	02.34	22.00	000.71	005.27	0465.8	03.01	02.47	18.6
66027	1	780525	015281	000.60	004.43	0515.2	03.13	02.81	15.9	000.06	000.23	0410.0	02.88	21.60	000.21	000.60	0490.8	03.23	02.92	18.0
66027	2	780811	018198	000.65	004.73	0471.0	02.55	02.45	18.5	000.07	000.11	0355.9	02.56	24.89	000.52	002.11	0432.6	02.79	02.68	20.2
66027	3	781107	020242	000.96	006.67	0498.4	02.69	02.44	17.3	000.10	000.31	0392.3	02.47	22.56	000.52	003.75	0448.3	02.58	02.33	19.4
66027	4	790212	021786	000.99	007.18	0491.6	02.38	02.13	17.5	000.10	000.30	0380.8	02.38	23.24	000.64	002.97	0456.9	02.69	02.40	19.1
66028	0	780310	013907	001.72	030.66	0335.2	03.06	02.64	22.8	001.00	009.93	0243.2	03.85	33.86	001.61	028.38	0333.7	03.24	02.78	23.1
66028	M	780327	014367	001.65	026.60	0342.5	03.08	02.92	22.8	000.99	009.27	0254.3	03.96	32.60	001.58	022.92	0331.6	03.03	02.74	23.8
66028	1	780531	016369	001.55	025.83	0333.1	03.03	02.80	23.4	001.01	009.63	0231.7	03.72	35.47	001.42	020.32	0322.3	03.05	02.80	24.7
66028	2	780822	018467	004.07	016.63	0327.5	02.59	02.41	24.2	001.00	005.89	0239.9	03.72	35.15	004.36	013.02	0317.1	02.49	02.32	25.2
66028	3	781115	021552	001.81	031.96	0337.7	03.43	03.00	22.5	001.05	009.40	0242.7	04.86	34.01	001.66	027.28	0318.5	03.28	02.87	24.1
66028	4	790207	023750	001.93	033.47	0303.3	02.87	02.55	24.5	001.02	010.10	0218.5	04.29	37.33	001.86	030.51	0296.3	02.76	02.43	25.3
66029	0	780314	023145	001.69	029.14	0482.7	03.69	03.06	15.6	000.24	003.75	0366.1	05.28	23.79	000.94	013.47	0457.8	03.12	02.59	18.4
66029	M	780328	023748	001.67	027.59	0516.1	03.72	03.37	15.7	000.19	003.39	0399.0	05.38	21.90	000.95	013.42	0482.5	03.13	02.83	17.5
66029	1	780601	025269	001.49	025.09	0489.2	03.72	03.31	16.6	000.21	003.45	0364.9	05.15	23.90	001.34	020.54	0447.0	03.14	02.82	18.3
66029	2	780823	028023	001.98	043.63	0467.5	02.94	02.89	15.4	000.29	005.55	0357.9	04.73	24.13	001.68	033.77	0450.6	02.67	02.60	17.4
66029	3	781116	030660	002.47	053.00	0469.1	03.48	02.98	15.8	000.33	007.00	0378.8	05.93	22.69	002.03	041.75	0446.1	03.16	02.74	17.1
66029	4	790221	032399	002.39	046.67	0480.4	03.61	03.37	15.8	000.42	008.42	0366.9	05.51	23.24	002.17	037.48	0449.6	03.30	02.81	17.2
66030	0	780321	020412	001.85	005.43	0295.1	03.09	02.69	28.3	000.91	002.17	0215.4	05.35	40.00	002.08	004.03	0289.3	02.87	02.51	29.3
66030	M	780404	020883	001.33	006.85	0315.0	03.21	02.91	26.9	000.94	002.33	0232.7	05.50	37.04	001.33	005.02	0310.2	03.09	02.79	27.5
66030	1	780616	022632	001.72	010.15	0292.1	02.73	02.44	28.3	000.96	002.95	0216.0	04.90	39.64	001.65	007.89	0279.1	02.55	02.30	29.8
66030	2	780912	024350	001.72	009.80	0306.7	02.74	02.59	27.1	001.00	002.75	0223.3	05.00	38.42	001.65	007.29	0294.9	02.39	02.25	28.4
66030	3	790103	025638	001.56	008.81	0298.4	02.83	02.22	28.0	000.98	002.83	0221.2	05.52	38.76	001.72	006.03	0297.1	02.83	02.19	28.4
66030	4	790326	026688	001.35	008.21	0329.2	02.53	02.21	25.6	000.80	002.45	0212.5	04.48	40.51	001.22	005.91	0319.4	02.30	02.02	26.6
66031	0	780405	025412	001.04	010.38	0348.3	03.17	02.84	24.1	000.79	002.20	0235.5	05.25	36.73	000.94	007.12	0339.6	02.99	02.68	25.0
66031	M	780413	025521	001.85	010.77	0311.9	02.87	02.70	25.5	000.87	002.64	0225.4	05.23	38.17	001.77	007.23	0295.5	02.76	02.64	28.3
66031	1	780623	026721	001.50	007.80	0301.0	02.81	02.66	27.9	000.87	002.07	0224.0	05.03	38.55	001.86	006.09	0301.9	02.79	02.66	27.9
66031	2	780905	029446	002.40	008.01	0306.2	02.46	02.32	27.2	001.00	002.58	0221.6	04.77	38.76	002.40	005.53	0293.1	02.33	02.18	28.6
66031	3	781204	031733	002.15	006.40	0306.5	02.52	02.13	27.4	000.93	001.90	0218.6	04.99	39.49	002.30	004.22	0293.7	02.32	01.98	28.8
66031	4	790220	034184	001.86	008.96	0328.5	02.75	02.39	25.4	000.92	002.59	0215.4	04.67	39.87	001.97	006.68	0306.7	02.54	02.21	27.4
66032	0	780405	014554	001.38	009.43	0731.4	03.60	03.23	11.8	000.40	000.44	0543.4	03.24	16.26	001.03	001.51	0703.5	03.66	03.29	12.5
66032	M	780412	014702	000.67	006.06	0720.4	01.79	01.50	12.1	000.24	000.93	0548.6	02.15	16.10	000.62	004.51	0680.7	02.06	01.85	12.8
66032	1	780627	016828	000.62	006.60	0716.2	01.50	01.42	12.2	000.27	001.02	0557.0	01.92	15.85	000.78	005.21	0661.3	01.75	01.66	13.2
66032	2	780914	019213	000.68	008.06	0730.2	01.57	01.35	11.9	000.26	001.38	0547.3	01.94	16.11	000.81	005.37	0676.8	01.88	01.87	12.8
66032	3	781212	020927	000.84	014.05	0810.5	02.38	02.02	10.6	000.31	014.89	0609.7	02.72	13.98	001.04	029.84	0749.2	02.48	02.12	11.0
66032	4	790227	021889	000.88	009.61	0702.5	01.64	01.39	12.3	000.29	001.04	0524.2	02.18	16.83	000.82	004.83	0646.3	01.96	01.67	13.5
66033	0	780405	026240	003.38	048.01	0644.3	02.67	02.38	12.1	000.39	005.68	0545.7	04.80	15.95	002.35	035.63	0602.1	02.49	02.19	13.3
66033	M	780426	027252	002.03	026.59	0643.5	02.32	02.24	12.8	000.15	002.59	0528.4	04.08	16.64	001.32	024.50	0596.0	02.17	02.13	13.8
66034	0	780410	036703	003.93	046.50	0539.7	02.29	02.11	14.2	000.94	004.93	0468.4	02.27	18.51	003.65	041.20	0498.8	01.91	01.78	15.4
66034	M	780512	038465	003.47	042.83	0533.7	02.07	01.84	14.5	002.44	036.69	0433.4	01.92	17.78	002.61	026.50	0522.3	02.15	01.83	15.5
66034	1	780626	040857	005.15	072.04	0485.3	01.68	01.62	14.4	002.99	054.51	0391.8	01.28	18.21	004.32	056.21	0465.9	01.59	01.53	15.6
66034	2	780913	045507	005.12	058.97	0525.1	01.99	01.91	14.3	003.46	058.54	0413.1	01.49	17.18	004.76	054.03	0503.2	01.92	01.84	14.7
66034	3	781206	048607	005.76	062.83	0486.6	02.11	01.75	14.7	003.44	048.42	0389.1	01.59	18.63	004.76	049.11	0473.6	02.22	01.86	15.6
66034	4	790223	051043	008.84	118.92	0448.8	01.09	00.95	13.4	004.03	066.95	0387.1	01.04	17.56	007.03	091.20	0448.9	01.32	01.14	14.4
66035	0	780410	018856	000.61	004.74	0576.3	03.86	03.50	15.1	000.12	000.21	0438.0	04.47	20.21	000.32	002.78	0554.8	03.56	03.26	15.8
66035	M	780419	018930	000.63	003.85	0580.0	05.34	05.14	15.1	000.12	000.19	0447.1	06.92	19.81	000.31	002.26	0554.4	05.91	05.68	15.8
66035	1	780710	023270	000.72	005.10	0544.4	02.68	02.44	15.0	000.13	000.26	0410.1	03.86	21.58	000.31	002.48	0517.4	02.94	02.70	16.9
66035	2	781101	027012	000.67	004.03	0559.0	03.65	03.34	15.6	000.13	000.30	0425.5	04.32	20.80	000.33	002.55	0519.9	03.30	02.75	16.3
66035	3	790115	027555	000.94	007.71	0556.4	04.21	03.43	15.5	000.15	000.69	0419.2	04.59	21.08	000.57	005.45	0532.8	03.71	03.03	16.3
66035	4	790327	027800	001.00	011.56	0554.3	03.32	02.39	15.4	000.17	001.14	0430.6	04.15	20.49	000.44	005.07	0520.3	03.05	02.73	16.7
66036	0	780417	036717	002.33	048.70	0332.4	02.48	02.29	21.3	001.65	019.40	0243.6	03.72	31.75	002.19	047.99	0319.1	02.37	02.17	22.0
66036	M	780502	037012	002.40	025.87	0333.9	01.94	01.71	23.2	001.51	014.95	0217.1	02.84	36.14	002.22	017.92	0311.7	01.34	01.71	25.5
66036	1	780707	039288	002.45	025.80	0321.1	02.40	02.60	24.0	001.74	016.94	0229.0	04.01	33.96	002.80	035.82	0338.2	03.08	03.45	21.9
66036	2	780926	042242	004.35	018.30	0327.4	03.36	03.40	24.0	001.97	016.00	0221.2	03.76	35.11	004.19	022.36	0320.7	02.88	02.89	24.0
66036	3	781219	044337	003.64	021.83	0330.8	03.75	03.13	23.5	002.77	015.17	0236.0	05.17	33.01	004.28	023.57	0334.4	04.07	03.36	23.3
66036	4	790312	047824	002.67	017.64	0318.6	03.91	03.33	25.0	002.69	011.25	0214.2	04.58	36.90	003.01	013.58	0313.5	03.97	03.37	25.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
66037	0	780418	012676	001.01	013.25	0339.2	02.62	02.46	24.4	000.68	006.10	0241.7	05.11	34.99	000.97	011.67	0328.9	02.56	02.39	25.3
66037	M	780502	013048	000.97	012.59	0326.2	02.21	01.93	25.4	000.55	009.06	0248.7	05.28	33.50	001.21	014.17	0306.6	02.18	01.85	26.6
66037	1	780712	014527	001.02	014.63	0335.3	02.34	02.19	24.5	000.62	009.57	0219.0	04.56	37.57	001.06	013.86	0317.1	02.20	02.05	25.9
66037	2	780922	016147	000.84	018.27	0335.4	02.03	01.80	24.2	000.55	006.14	0232.1	05.07	36.42	000.92	010.21	0311.9	02.49	02.21	26.8
66037	3	781215	018465	001.86	016.93	0305.9	02.68	02.27	25.2	000.69	008.58	0232.8	05.23	35.69	002.32	013.55	0298.8	02.85	02.46	27.0
66037	4	790302	020275	001.75	017.13	0292.7	02.30	01.91	27.3	000.74	008.22	0224.4	05.38	37.00	002.58	009.91	0280.2	02.56	02.13	29.1
66038	0	780831	018686	003.51	074.85	0427.9	01.28	01.31	15.9	002.26	095.26	0338.1	01.14	17.92	002.88	075.14	0421.8	01.02	01.01	16.1
66038	M	781002	018942	003.34	078.22	0418.5	01.60	01.45	15.1	002.46	092.06	0298.1	01.00	19.68	002.64	067.27	0389.0	01.16	01.06	17.6
66038	1	781215	021504	002.93	061.28	0423.4	01.85	01.54	15.8	002.78	090.64	0314.7	01.27	19.03	002.87	063.55	0391.9	01.38	01.16	17.7
66038	2	790301	022688	002.82	061.41	0399.0	01.91	01.52	17.6	002.45	087.09	0288.0	01.01	20.50	002.38	059.31	0377.1	01.41	01.19	18.5
66038	3	790829	024857	003.63	073.00	0384.4	01.31	01.33	17.4	002.72	090.83	0282.1	00.61	20.46						
66038	4	791012	026380	003.23	076.05	0402.9	01.16	01.10	16.6	002.30	086.58	0295.8	00.66	20.19						
66039	0	780915	035772	003.48	072.64	0597.4	01.91	01.72	12.3	001.73	039.87	0451.9	02.39	17.05	002.88	047.47	0582.7	02.02	01.80	13.3
66040	0	780919	034143	001.04	002.78	0588.5	04.33	04.01	14.9	000.43	000.53	0460.8	05.41	19.15	000.81	002.17	0558.9	03.67	03.37	15.7
66040	M	781002	034554	001.18	002.58	0552.3	04.18	03.80	15.8	000.46	000.76	0438.9	05.00	20.08	000.95	000.98	0520.5	04.24	03.85	16.3
66040	1	781212	036329	001.69	003.21	0534.8	05.06	04.07	16.3	000.62	001.79	0418.3	05.67	20.96	001.21	001.91	0497.8	04.39	03.56	17.5
66040	2	790308	037865	001.40	003.83	0516.9	04.20	03.53	15.8	000.65	002.30	0415.6	05.57	21.05	001.31	002.21	0470.6	03.88	03.36	18.5
66040	3	790824	041542	002.64	023.34	0500.8	03.28	03.39	16.2	001.00	009.18	0403.7	04.56	21.05						
66040	4	791005	043494	002.19	012.50	0547.7	03.95	03.85	15.4	000.98	007.78	0450.0	05.53	19.06						
66041	0	780927	040493	000.85	022.70	0399.9	02.13	02.03	20.2	000.32	011.48	0242.6	02.32	33.90	000.86	027.73	0388.2	01.39	01.33	20.4
66041	M	781005	040639	001.24	017.23	0327.6	02.60	02.36	24.7	000.62	009.46	0232.6	03.33	35.55	001.18	012.07	0317.1	02.78	02.53	26.0
66041	1	781228	046228	001.30	019.18	0362.9	04.01	03.21	22.3	000.68	009.19	0233.9	04.71	35.40	001.44	014.33	0374.3	05.51	04.50	22.0
66041	2	790315	049050	001.36	016.65	0332.7	03.29	02.98	24.4	000.75	009.55	0230.6	04.25	35.76	001.25	013.81	0321.2	03.30	02.97	25.5
66041	3	790917	057691	001.63	025.70	0339.4	03.43	03.41	23.0	001.07	013.87	0236.2	04.12	33.93						
66041	4	791015	058950	001.54	024.52	0338.3	03.26	03.23	23.2	001.07	012.83	0241.5	04.45	33.46						
66042	0	781003	039793	002.44	039.22	0655.4	03.16	02.87	12.2	000.51	009.88	0483.4	03.63	17.72	002.48	039.44	0618.8	03.10	02.79	12.8
66042	M	781018	040121	002.38	039.65	0659.3	03.47	03.35	12.2	000.59	011.09	0483.5	04.25	17.64	002.38	040.00	[illegible]	03.44	03.01	12.7
66042	1	781229	042719	001.26	014.24	0653.0	04.07	03.27	13.1	000.29	003.72	0461.9	04.77	18.92	000.97	008.31	[illegible]	04.03	03.24	13.9
66042	2	790315	045348	001.55	024.98	0672.0	03.21	02.87	12.4	000.24	003.93	0470.9	03.54	18.56	000.67	004.95	0633.2	03.69	03.14	13.7
66042	3	790803	050945	001.50	021.22	0650.7	02.78	02.50	12.9	000.39	005.20	0460.8	03.25	18.86						
66042	4	791009	052264	001.61	021.39	0657.3	02.57	02.35	12.7	000.38	007.47	0466.4	02.97	18.50						
66043	0	781011	025365	004.69	050.59	0332.4	03.23	02.82	20.8	000.72	005.19	0278.8	05.49	30.66	004.22	048.51	0315.5	03.07	02.68	21.8
66044	0	781106	025460	002.88	059.72	0602.9	02.56	02.20	12.6	000.27	005.64	0517.4	04.38	16.82	002.55	054.84	0582.1	02.47	02.14	13.1
66044	M	781129	026281	002.48	047.05	0663.0	01.73	01.55	11.9	000.21	007.18	0554.8	02.74	15.65	002.49	052.05	0623.2	01.54	01.38	12.4
66044	1	790216	028424	000.93	020.59	0670.1	01.54	01.33	12.6	000.08	002.33	0539.5	02.78	16.32	000.79	020.46	0626.8	01.32	01.14	13.4
66045	0	781226	049968	003.28	064.83	0535.3	02.60	02.16	13.7	000.43	007.10	0450.5	03.85	19.15	002.86	056.56	0509.4	02.50	02.09	14.6
66046	0	781228	042276	004.34	092.83	0668.5	02.08	01.70	10.7	001.40	024.50	0535.4	02.51	15.33	005.47	136.53	0576.3	01.54	01.26	10.9
66047	0	790103	049182	016.48	058.26	0649.9	09.55	07.47	11.2	001.20	004.48	0496.3	12.59	17.49	009.18	073.09	0552.6	08.98	07.16	12.7
66047	M	790118	049803	001.49	005.37	0630.7	10.62	08.82	13.8	000.38	000.71	0497.0	13.23	17.76	001.04	002.64	0604.7	11.84	09.73	14.4
66047	1	790330	053225	001.46	005.70	0618.9	08.84	07.54	14.0	000.37	000.49	0467.2	11.85	18.90	001.15	002.30	0571.7	08.98	07.71	15.3
66047	2	790830	059553	001.33	004.39	0615.5	07.89	08.30	14.2	000.30	000.47	0460.9	09.10	19.17						
66047	3	791106	062871	001.43	004.79	0622.5	08.19	07.21	14.0	000.33	000.44	0462.6	10.14	19.10						
66047	4	800102	065793	001.80	013.98	0653.5	08.33	07.48	13.0	000.45	001.00	0502.0	10.23	17.56						
76001	0	771018	006994	001.55	018.80	0565.0	01.73	01.62	14.8	000.16	001.74	0404.9	02.05	21.73	000.96	013.55	0538.6	01.71	01.61	15.7
76001	M	771207	007542	000.48	002.32	0633.9	03.53	02.92	13.9	000.03	000.15	0450.1	03.22	19.69	000.40	006.35	0604.5	03.20	02.64	14.4
76001	1	780328	011136	000.43	003.63	0684.6	01.10	00.97	12.8	000.08	001.71	0480.1	00.97	18.36	000.63	012.25	0626.7	00.82	00.72	13.6
76002	0	771103	012701	001.48	015.44	0561.5	01.38	01.27	15.0	000.18	001.31	0384.8	01.51	22.89	001.23	013.35	0517.6	01.26	01.15	16.3
76002	M	780210	017097	001.20	011.89	0571.3	01.98	01.55	14.9	000.14	001.20	0410.6	02.37	21.47	000.70	007.58	0526.1	01.71	01.42	16.4
76002	1	780414	020182	001.28	013.06	0579.9	01.72	01.55	14.7	000.16	001.46	0408.8	01.97	21.55	000.75	007.64	0543.9	01.60	01.44	15.8
76002	2	780710	023289	001.00	008.68	0556.7	01.72	01.52	15.5	000.14	000.48	0383.3	01.85	23.07	000.84	009.19	0519.2	01.58	01.50	16.5
76002	3	781003	028104	001.05	008.60	0601.9	01.95	01.82	14.3	000.13	000.11	0412.2	02.09	21.49	000.69	004.92	0552.1	01.93	01.83	15.7
76002	4	790104	031758	001.02	008.04	0560.8	02.15	01.70	15.4	000.11	000.25	0394.9	02.52	22.41	000.86	006.05	0535.5	02.31	01.80	16.1
76003	0	771110	011356	001.81	030.92	0455.9	01.99	01.90	17.3	000.19	001.56	0363.5	02.90	24.19	001.17	017.45	0434.9	01.91	01.86	19.0
76003	M	771213	011857	001.07	012.58	0456.8	02.19	02.35	17.1	000.39	000.35	0371.1	02.17	23.85	000.64	001.69	0474.7	01.71	01.51	18.5
76003	1	780411	015818	001.25	019.03	0502.4	02.03	01.83	16.5	000.10	000.56	0373.2	02.32	23.68	000.68	005.13	0476.0	01.76	01.57	18.2
76004	0	771118	005895	002.00	034.65	0456.8	02.30	01.89	17.1	000.20	002.31	0351.9	01.59	24.90	001.59	023.80	0441.4	01.69	01.40	18.3
76004	M	780525	008825	000.66	007.78	0496.2	01.85	01.66	17.4	000.13	001.04	0377.5	01.85	23.36	000.58	005.44	0470.0	01.45	01.29	18.4
76004	1	780630	009438	000.57	011.82	0514.8	01.57	01.54	16.5	000.15	001.10	0399.7	01.95	22.07	000.63	006.27	0484.7	01.30	01.28	17.8
76004	2	780915	012322	001.09	010.76	0516.1	01.63	01.58	16.5	000.19	001.40	0405.2	02.19	21.73	000.73	004.95	0488.1	01.74	01.67	17.8
76004	3	781211	014078	001.51	015.99	0476.9	01.42	01.26	17.5	000.15	001.22	0377.4	01.96	23.35	000.64	006.07	0465.5	01.38	01.22	18.5
76004	4	790227	015027	001.42	015.18	0506.3	01.79	01.55	15.6	000.17	001.95	0398.3	02.30	22.07	001.01	011.23	0478.4	01.62	01.42	17.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
76005	0	771212	012332	001.71	036.30	0613.1	01.87	01.66	13.1	000.17	002.02	0489.3	02.71	17.99	001.90	029.93	0579.6	01.83	01.63	14.0
76005	M	780118	013382	000.58	008.22	0648.2	01.64	01.42	13.4	000.05	000.85	0460.7	01.91	19.19	000.28	001.73	0609.0	01.55	01.34	14.6
76005	1	780428	018686	001.03	014.05	0599.2	01.82	01.72	14.2	000.10	001.11	0460.6	02.59	19.17	000.55	007.64	0566.8	01.76	01.65	15.2
76005	2	780725	020217	001.05	012.11	0575.2	01.29	01.44	14.8	000.06	000.47	0429.5	01.65	20.60	000.43	003.92	0553.1	01.20	01.35	15.8
76005	3	781017	021934	001.37	016.37	0582.7	01.76	01.62	14.5	000.08	000.62	0451.2	02.42	19.60	001.04	011.20	0548.7	01.68	01.56	15.5
76005	4	790123	023549	001.46	022.63	0562.7	01.87	01.57	14.7	000.14	001.08	0430.6	02.50	20.49	001.21	016.28	0533.1	01.73	01.44	15.7
76006	0	780116	010266	002.06	037.16	0334.4	02.04	01.77	22.2	001.13	017.13	0230.5	02.81	33.98	001.84	033.55	0321.9	01.95	01.70	23.3
76006	M	780210	010756	001.28	008.73	0354.3	02.53	02.27	23.8	000.78	004.58	0231.2	03.43	36.82	001.23	010.87	0340.9	02.41	02.18	24.5
76006	1	780517	013254	001.42	009.02	0350.3	02.67	02.34	24.0	001.02	007.34	0231.0	03.36	36.08	001.61	016.36	0328.0	02.31	02.03	24.7
76006	2	780921	016630	001.51	009.85	0340.8	02.62	02.47	24.6	001.14	006.38	0238.4	04.16	35.18	001.35	008.65	0349.3	02.70	02.40	24.1
76006	3	781221	018603	001.71	009.57	0360.8	02.79	02.45	23.3	001.04	003.87	0234.9	03.91	36.30	001.54	010.60	0350.0	02.64	02.33	23.8
76006	4	790322	019851	000.88	006.71	0358.6	02.02	01.72	23.8	000.54	004.31	0234.1	02.56	36.55	001.46	018.75	0344.4	01.98	01.71	23.6
76007	0	780112	012199	001.59	017.55	0354.2	04.10	03.66	22.9	000.95	008.42	0242.5	04.95	34.27	001.36	011.49	0348.0	04.19	03.73	23.9
76008	0	780114	010089	005.63	064.44	0501.5	01.30	01.09	14.3	002.11	016.73	0415.1	01.04	19.79	004.54	048.77	0491.9	01.12	00.94	15.2
76008	M	780216	013124	002.94	027.92	0558.5	01.08	00.97	14.5	001.56	012.39	0436.4	00.88	19.25	001.99	018.43	0553.0	00.96	00.87	15.3
76008	1	780605	012397	007.06	122.56	0493.2	00.43	00.49	12.5	003.89	051.18	0276.4	00.40	24.02	005.84	098.41	0503.6	00.48	00.49	13.1
76008	2	780824	014547	006.41	113.47	0504.8	00.53	00.55	12.6	002.54	055.10	0457.1	00.46	16.07	005.77	092.24	0491.3	00.46	00.48	13.5
76008	3	781117	016326	006.42	097.59	0512.8	00.64	00.56	12.9	002.46	039.86	0470.9	00.55	16.38	005.99	087.64	0498.8	00.58	00.51	13.5
76008	4	790213	017477	002.97	050.67	0553.4	00.57	00.50	13.3	002.47	072.63	0474.0	00.40	14.88	001.96	029.08	0540.4	00.56	00.49	14.7
76009	0	780116	019477	005.08	037.47	0492.6	01.27	01.08	15.6	001.08	012.25	0391.2	01.09	21.43	003.71	030.48	0492.0	01.20	01.03	16.0
76009	M	780130	019834	003.96	049.47	0553.8	03.74	03.14	13.8	001.59	017.35	0393.9	02.28	20.81	003.04	034.75	0550.6	03.53	02.93	14.6
76009	1	780502	024764	002.94	041.16	0552.3	03.61	03.17	14.2	001.07	014.55	0413.4	02.07	20.17	001.74	023.58	0554.1	02.97	02.61	14.8
76009	2	780727	029759	002.80	040.87	0534.6	03.20	03.03	14.6	001.23	017.37	0393.3	01.94	20.89	003.17	046.18	0510.8	02.79	02.65	14.9
76009	3	781024	036067	003.40	050.13	0577.3	03.97	03.44	13.3	001.70	021.87	0419.1	02.46	19.32	004.00	058.51	0537.9	03.16	02.73	13.8
76009	4	790124	039762	003.97	056.30	0532.2	03.24	02.78	14.0	001.90	020.62	0383.5	01.72	21.02	003.97	047.29	0515.3	03.02	02.57	14.7
76010	0	780120	016492	010.75	089.65	0448.6	01.73	01.55	14.2	001.77	012.67	0410.9	01.65	20.32	008.07	068.27	0441.8	01.85	01.67	15.4
76010	M	780208	016784	003.25	032.73	0522.7	01.87	01.52	15.2	001.17	013.52	0436.7	02.21	19.21	001.32	014.51	0519.8	02.09	01.75	16.2
76010	1	780511	019777	006.10	079.36	0460.3	02.10	01.79	14.7	001.05	011.05	0432.2	01.56	19.58	006.30	061.07	0439.2	02.07	01.81	15.9
76010	2	780815	026487	003.07	028.14	0538.7	02.49	02.86	15.0	000.68	001.42	0447.6	02.47	19.62	003.19	016.41	0516.6	02.38	02.76	16.0
76010	3	781128	036013	005.57	077.17	0464.8	04.94	04.35	14.7	001.75	020.77	0436.6	08.76	18.68	004.85	073.15	0467.1	05.28	04.69	14.8
76011	0	780127	015198	001.55	019.04	0316.5	02.33	01.98	25.2	000.79	005.94	0221.3	03.09	38.04	001.57	020.56	0306.9	02.47	02.09	25.7
76012	0	780128	011433	003.04	044.18	0492.2	02.02	01.73	15.5	000.24	002.49	0415.9	02.68	21.09	001.77	026.17	0467.8	01.78	01.52	17.2
76012	M	780209	011563	000.98	010.87	0558.7	02.67	02.45	15.3	000.37	000.07	0410.9	02.88	21.56	000.21	000.81	0532.0	02.72	02.45	16.5
76012	1	780512	014738	000.86	010.90	0517.7	02.13	01.86	15.5	000.07	000.23	0392.5	02.21	22.56	000.25	001.16	0485.3	02.21	01.96	18.1
76012	2	780811	016595	000.82	009.02	0548.3	02.15	02.32	15.7	000.09	000.48	0388.0	02.09	22.79	000.36	002.79	0512.0	01.88	01.76	17.1
76012	3	781103	021529	000.79	007.18	0532.9	02.06	01.85	16.2	000.10	000.18	0399.4	02.32	22.17	000.28	001.36	0499.4	01.96	01.75	17.6
76012	4	790208	023315	000.99	023.59	0628.6	00.84	00.76	13.3	000.13	004.83	0460.5	00.83	18.93	000.66	012.58	0606.2	00.83	00.75	14.1
76013	0	780130	011019	004.24	056.94	0447.0	05.08	04.23	16.1	001.57	018.46	0381.8	04.05	21.33	004.14	051.62	0427.2	04.74	03.98	17.0
76013	M	780213	011257	003.24	036.60	0487.9	05.21	04.36	16.0	001.97	024.66	0383.1	04.48	20.71	002.30	030.21	0465.0	03.70	03.13	17.0
76013	1	780510	013008	002.15	031.38	0457.0	03.64	03.39	17.3	001.34	018.50	0359.1	02.98	22.60	001.99	028.24	0436.2	02.57	02.28	18.2
76013	2	780804	016895	000.47	007.22	0493.2	03.22	02.93	17.5	000.10	001.48	0417.2	03.69	21.12	000.42	004.40	0472.0	03.34	03.03	18.4
76013	3	781030	018068	002.05	032.30	0466.2	03.44	02.95	15.9	001.17	017.83	0374.9	03.31	21.81	001.82	028.05	0434.2	02.92	02.52	18.3
76013	4	790126	019473	001.76	020.90	0483.6	03.92	03.24	17.0	001.11	014.49	0367.1	03.99	22.54	001.34	015.89	0453.4	03.46	02.85	18.3
76014	0	780202	009872	002.02	039.02	0522.1	02.62	02.33	15.0	000.19	003.02	0410.6	03.82	21.32	001.17	019.26	0486.8	02.25	02.00	17.0
76014	M	780209	010027	001.54	018.55	0551.7	03.48	03.15	15.1	000.37	000.58	0418.6	04.73	21.13	000.28	002.07	0523.2	03.47	03.12	16.8
76014	1	780508	011588	000.45	005.60	0540.8	03.81	03.36	16.1	000.12	003.57	0412.5	04.29	21.19	000.23	004.98	0505.9	02.72	02.42	17.2
76014	2	780802	014965	000.44	005.57	0514.3	02.93	02.77	15.9	000.06	000.70	0377.5	03.81	23.41	000.19	002.68	0473.1	02.68	02.56	18.5
76014	3	781025	016903	000.52	007.53	0542.4	03.65	03.14	16.0	000.08	001.87	0406.3	04.54	21.65	000.22	003.95	0512.9	03.31	02.83	17.0
76014	4	790124	018332	000.88	012.17	0512.7	02.55	02.21	15.6	000.32	009.34	0373.7	02.77	22.77	000.59	010.63	0469.7	01.95	01.69	18.1
76015	0	780208	022532	001.81	030.27	0549.0	01.99	01.82	14.7	000.14	001.15	0412.9	02.38	21.36	001.30	019.15	0521.9	02.00	01.84	15.9
76016	0	780210	013056	003.25	056.08	0593.6	01.51	01.26	12.8	001.24	017.66	0465.9	02.28	17.82	002.52	037.58	0570.0	01.67	01.39	13.9
76015	M	780524	017955	001.51	024.03	0625.2	01.47	01.30	13.3	001.60	022.11	0495.8	02.62	16.56	001.11	018.54	0600.3	01.42	01.27	14.3
76016	1	780720	021251	001.14	021.51	0612.2	01.16	01.17	13.7	000.79	015.46	0440.9	01.61	18.96	000.86	014.65	0577.4	01.18	01.19	14.7
76016	2	781005	023443	001.49	027.58	0608.6	01.27	01.14	13.5	000.43	013.58	0440.3	01.85	19.09	000.99	017.40	0573.4	01.29	01.15	14.5
76016	3	781227	026372	002.23	036.85	0604.2	01.31	01.10	13.3	001.33	019.58	0440.9	02.08	18.64	001.20	016.96	0589.9	01.48	01.25	14.2
76016	4	790321	028488	001.48	020.92	0596.0	01.87	01.53	14.0	001.10	016.41	0422.6	01.92	19.63	001.05	013.77	0560.2	01.62	01.35	15.1
76017	0	780214	006431	002.48	050.33	0522.6	02.16	01.80	14.5	000.27	002.40	0446.4	02.85	19.66	002.24	040.63	0491.8	01.95	01.63	15.7
76017	M	780314	006965	000.60	013.70	0725.7	01.23	01.31	11.8	000.02	000.24	0540.6	01.47	16.39	000.36	007.65	0690.7	00.77	00.63	12.6
76017	1	780519	008619	000.46	009.84	0738.1	01.09	01.08	11.7	000.05	000.49	0550.4	01.33	16.09	000.47	012.86	0688.4	00.71	00.71	12.4
76017	2	780810	009970	000.87	016.40	0713.5	00.90	00.90	11.9	000.04	000.37	0532.2	01.05	16.64	000.40	008.88	0678.7	00.37	00.56	12.7
76017	3	781106	011778	000.75	014.84	0656.0	01.03	00.88	12.3	000.05	000.40	0536.6	01.27	16.50	000.45	006.94	0658.0	00.81	00.69	13.2
76017	4	790202	012940	000.79	015.51	0678.8	01.17	00.94	12.6	000.18	006.14	0496.9	01.01	17.49	001.36	035.08	0625.3	00.79	00.64	12.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	JDUN	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
76018	0	780215	017740	002.94	049.30	0460.3	00.85	00.75	16.2	000.99	013.70	0364.8	01.34	22.77	003.10	045.38	0426.4	00.52	00.46	17.4
76018	M	780302	018061	001.65	026.46	0465.3	00.85	00.79	17.3	001.30	016.64	0341.5	01.20	23.92	001.76	021.90	0433.6	00.51	00.48	16.7
76018	1	780524	022163	000.96	014.82	0463.4	02.41	02.08	18.1	000.12	001.13	0367.8	02.63	23.97	001.07	008.28	0443.8	02.02	01.76	19.2
76018	2	780906	028971	001.55	021.83	0463.5	01.87	01.70	17.6	000.19	001.37	0379.7	02.32	23.19	001.31	012.11	0438.4	01.54	01.39	19.2
76018	3	781129	033399	000.99	009.42	0465.6	02.15	02.01	18.3	000.30	001.34	0389.9	02.08	22.57	001.03	007.86	0456.9	02.19	02.05	18.7
76018	4	790213	036652	001.05	007.98	0469.2	02.38	02.03	19.3	000.29	000.73	0362.0	02.10	24.36	001.59	005.89	0438.0	02.03	01.73	19.6
76019	0	780216	017691	009.08	098.71	0440.8	06.21	05.27	14.2	001.01	012.42	0383.4	07.47	21.84	007.36	088.06	0393.1	05.20	04.43	15.9
76019	M	780223	017913	001.74	023.99	0506.5	02.42	02.21	15.1	000.16	001.95	0415.6	03.95	21.16	000.54	006.60	0473.1	02.07	01.93	18.2
76019	1	780517	021259	000.96	013.97	0470.1	02.36	02.03	17.9	000.13	000.67	0355.1	02.97	24.87	000.53	002.92	0444.4	02.29	01.99	19.6
76019	2	780815	023115	001.78	025.08	0524.2	02.28	02.35	15.6	000.21	002.64	0360.2	02.65	24.29	000.53	006.79	0446.0	01.92	01.99	19.3
76019	3	781103	026345	001.87	025.96	0455.4	06.65	06.14	17.7	000.25	003.08	0360.1	07.55	24.25	000.78	010.16	0440.9	06.01	05.71	19.3
76019	4	790123	028390	001.97	023.42	0447.0	07.23	06.00	19.1	000.31	003.18	0342.5	07.76	25.45	000.75	006.67	0436.1	06.99	05.82	19.7
76020	0	780228	014998	002.06	033.71	0521.3	02.43	02.26	15.3	000.27	001.82	0397.9	04.10	22.08	001.73	028.24	0492.3	02.27	02.14	16.3
76020	M	780322	016297	000.93	004.00	0535.9	03.74	03.33	15.3	000.12	000.81	0402.5	03.85	21.94	000.35	004.96	0493.5	02.49	02.22	17.5
76020	1	780524	018368	000.59	004.93	0517.8	02.24	01.96	16.6	000.10	000.64	0382.8	03.39	23.09	000.30	002.58	0489.2	02.41	02.10	17.9
76020	2	780815	021546	000.87	005.06	0538.6	02.06	01.92	15.1	000.11	000.80	0379.1	03.10	23.29	000.39	006.73	0517.3	02.55	02.33	16.7
76020	3	781110	024204	001.03	009.62	0524.3	02.67	02.08	15.3	000.14	000.76	0377.4	04.51	23.40	000.56	004.57	0498.1	03.05	02.40	17.4
76020	4	790213	028039	001.41	016.28	0516.8	06.28	05.70	15.2	000.21	000.89	0373.1	07.32	23.63	001.06	013.32	0476.2	06.12	05.55	17.7
76021	0	780302	023698	004.27	099.09	0569.6	03.55	02.99	12.0	000.84	015.86	0499.8	04.09	16.82	003.48	084.67	0563.3	03.37	02.85	12.5
76021	M	780315	024171	001.80	032.54	0680.6	03.12	02.53	12.0	000.35	009.12	0552.7	03.15	15.61	001.55	027.54	0646.2	02.56	02.23	12.7
76021	1	780526	028217	002.21	047.33	0688.2	02.97	02.77	11.5	000.52	011.59	0574.9	03.81	14.91	002.46	049.18	0695.8	03.30	03.08	11.3
76021	2	780908	034691	002.85	061.92	0643.8	02.69	02.49	11.8	000.52	013.31	0526.1	03.19	16.16	003.16	064.27	0609.7	02.46	02.28	12.3
76022	0	780303	009746	002.72	044.60	0540.0	01.62	01.44	14.3	000.18	003.23	0435.6	01.93	20.10	001.93	031.81	0523.4	01.32	01.18	15.3
76023	0	780306	014291	003.62	054.88	0485.3	01.78	01.53	15.1	000.47	006.04	0389.2	01.62	22.16	002.55	038.62	0470.2	01.52	01.30	16.4
76023	M	780310	014358	001.63	015.65	0546.0	02.46	02.07	13.4	000.18	001.31	0422.4	02.41	20.87	000.94	008.02	0519.0	02.28	01.93	16.5
76023	1	780530	016416	001.68	018.22	0511.6	02.61	02.24	16.3	000.20	001.41	0395.0	02.96	22.29	001.10	008.22	0487.6	02.06	01.78	17.5
76023	2	780817	019173	000.85	008.02	0525.7	01.99	01.95	15.4	000.14	000.95	0406.8	02.07	21.70	000.32	001.89	0499.0	01.89	01.88	17.6
76023	3	781114	021297	000.79	008.14	0521.7	02.20	01.80	16.5	000.15	000.68	0412.6	02.31	21.41	000.37	002.11	0492.5	02.18	01.77	17.8
76023	4	790208	022360	003.05	039.99	0498.5	01.56	01.37	15.5	000.37	004.50	0386.8	01.56	22.45	002.47	030.98	0470.8	01.25	01.11	16.8
76024	0	780306	016741	004.14	078.51	0499.5	01.56	01.34	13.9	000.33	005.71	0423.5	02.09	20.45	002.48	054.90	0475.4	01.34	01.15	15.5
76024	M	780331	017317	001.41	026.83	0668.1	01.19	01.30	12.4	000.08	002.97	0517.4	01.09	16.98	000.17	003.72	0643.0	01.07	00.93	13.6
76024	1	780526	020556	001.04	017.60	0544.5	01.34	01.21	15.4	000.17	004.64	0406.7	01.12	21.39	000.30	005.29	0509.4	00.97	00.88	17.1
76024	2	780817	024563	000.77	013.64	0552.8	01.48	01.47	15.4	000.07	000.12	0420.3	01.65	21.08	000.20	000.94	0517.4	01.40	01.38	17.0
76024	3	781110	028238	002.15	029.83	0578.5	02.10	01.66	14.0	000.07	000.12	0404.3	01.96	21.91	000.58	002.87	0572.5	02.09	01.63	15.3
76024	4	790208	030518	001.55	015.97	0518.1	01.51	01.33	16.2	000.15	001.01	0398.7	01.51	22.13	000.90	009.60	0489.3	01.15	01.01	17.4
76025	0	780307	019646	002.44	036.45	0489.4	03.23	02.91	15.3	000.25	002.49	0375.0	03.85	23.35	001.60	025.60	0458.6	02.61	02.34	17.6
76025	M	780328	020220	000.83	011.35	0547.9	01.42	01.27	15.5	000.38	000.76	0413.9	01.52	21.35	000.34	003.11	0502.2	01.27	01.14	17.4
76025	1	780526	022300	001.65	008.21	0595.7	01.95	01.75	14.4	000.19	000.58	0437.2	01.84	20.21	000.59	001.12	0563.4	01.75	01.58	15.6
76025	2	780816	025090	001.51	027.82	0554.9	01.44	01.38	14.7	000.15	001.92	0410.4	01.32	21.43	001.16	019.30	0521.7	01.19	01.15	15.9
76025	3	781127	028003	002.09	030.85	0545.2	01.37	01.12	14.8	000.17	001.91	0405.2	01.36	21.69	001.26	014.91	0520.6	01.15	00.95	16.1
76025	4	790214	031094	001.33	017.76	0522.1	01.62	01.35	16.3	000.10	001.24	0382.7	01.60	23.03	000.28	004.48	0492.0	01.37	01.14	17.7
76026	0	780307	019951	001.49	008.20	0630.7	02.42	02.23	13.7	000.18	000.16	0446.5	02.50	19.82	000.67	002.21	0601.3	02.23	02.05	14.6
76026	M	780323	020372	000.64	001.53	0598.9	01.78	01.58	14.7	000.14	000.17	0438.8	02.07	20.18	000.50	003.46	0573.6	01.96	01.74	15.2
76026	1	780526	024741	000.64	002.36	0595.9	01.88	01.66	14.7	000.14	000.07	0423.1	02.15	20.93	000.40	000.81	0564.6	01.69	01.50	15.6
76026	2	780822	027759	000.63	001.84	0594.9	01.83	01.70	14.8	000.15	000.09	0430.6	02.05	20.57	000.62	004.12	0563.0	01.83	01.69	15.5
76026	3	781130	029503	000.89	004.27	0578.3	01.76	01.59	15.1	000.17	000.15	0423.6	02.00	20.90	000.60	003.31	0540.3	01.67	01.49	16.2
76026	4	790215	029740	001.11	011.41	0583.2	02.08	01.77	14.7	000.16	000.17	0422.6	02.40	20.95	000.57	005.68	0546.6	01.90	01.61	15.9
76027	0	780307	020154	002.34	032.23	0525.4	02.13	01.96	15.1	000.28	001.94	0399.6	03.49	21.98	001.80	024.20	0495.9	02.06	01.89	16.4
76027	M	780410	020372	001.01	009.91	0531.4	02.44	02.16	15.1	000.11	000.36	0382.9	03.75	23.10	000.34	002.63	0504.7	02.89	02.58	17.3
76027	1	780601	021730	001.15	010.53	0508.1	02.22	01.94	15.8	000.14	000.65	0371.1	03.38	23.80	000.57	006.33	0482.8	02.12	01.87	17.9
76027	2	780818	024729	001.06	009.53	0538.4	01.87	02.02	15.9	000.13	000.53	0406.6	03.40	21.74	001.06	012.03	0511.5	01.56	01.72	16.6
76027	3	781127	031308	001.47	009.49	0552.2	05.11	04.28	15.5	000.20	000.23	0402.2	08.42	22.00	001.17	006.47	0517.4	06.28	05.28	16.6
76027	4	790223	033869	002.14	020.05	0512.2	02.01	01.75	15.1	000.27	001.48	0408.3	03.86	21.55	000.71	005.79	0500.7	02.49	02.16	17.3
76028	0	780307	010358	002.08	032.15	0431.1	01.72	01.56	18.2	000.36	002.77	0387.9	01.86	22.55	001.51	017.07	0436.4	01.51	01.37	18.9
76028	M	780525	013968	001.52	015.36	0473.1	02.18	01.97	17.7	000.30	002.32	0404.2	02.14	21.69	001.44	013.83	0444.7	01.51	01.46	18.8
76028	1	780713	016810	001.93	019.01	0441.3	01.35	01.39	18.6	000.53	003.83	0377.8	01.46	23.00	002.12	020.93	0429.6	01.21	01.24	18.9
76028	2	781010	019925	002.01	017.45	0461.0	01.84	01.74	17.9	000.42	002.66	0394.2	01.90	22.19	001.77	014.87	0438.4	01.44	01.38	18.9
76028	3	781222	023908	001.78	015.53	0445.8	01.87	01.52	18.5	000.29	001.78	0369.4	01.93	23.77	001.61	015.48	0414.0	01.35	01.16	20.0
76028	4	790308	025063	003.10	037.72	0456.5	01.59	01.36	16.9	001.88	018.17	0358.3	01.78	22.58	002.89	031.76	0426.3	01.42	01.20	18.2
76029	0	780308	022136	004.25	073.39	0425.4	04.99	04.30	16.0	000.65	011.38	0348.9	05.54	24.05	003.08	061.36	0430.6	04.97	04.30	16.5
76030	0	780308	013348	002.30	048.35	0460.3	00.71	00.64	15.3	000.20	003.06	0421.1	01.04	20.74	002.12	041.86	0429.7	00.51	00.46	17.6
76030	M	780324	014263	000.96	014.17	0588.1	01.33	01.21	14.5	000.35	010.76	0408.6	01.15	20.79	000.72	017.93	0537.1	00.74	00.68	15.6
76030	1	780601	015145	000.73	011.97	0541.5	01.00	00.94	15.8	000.12	002.58	0410.4	00.96	21.38	000.55	007.35	0519.0	00.79	00.76	16.6
76030	2	780822	017103	000.80	011.91	0564.0	01.12	01.05	15.2	000.10	002.35	0431.5	01.46	20.36	000.59	007.62	0517.8	00.90	00.85	16.6
76030	3	781116	018409	000.65	009.22	0548.2	01.12	01.00	15.7	000.11	002.56	0417.1	01.14	21.04	000.39	005.31	0505.6	00.79	00.71	17.2
76030	4	790213	019413	000.79	011.04	0446.8	01.45	01.29	19.3	000.38	001.21	0377.9	03.18	23.33	000.20	002.94	0440.8	01.71	01.50	19.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
76031	0	780305	018177	001.62	011.17	0313.5	02.58	02.22	25.9	000.74	002.89	0226.1	03.56	38.06	001.46	009.27	0312.6	02.66	02.31	26.7
76031	M	780417	019400	001.53	008.46	0341.3	03.14	02.84	25.7	000.42	003.39	0245.2	04.72	35.04	001.34	005.26	0317.0	03.09	02.80	25.3
76031	1	780531	021121	001.43	008.35	0331.4	02.79	02.57	25.4	000.75	003.95	0238.8	05.24	35.85	001.06	004.84	0315.7	03.21	02.87	27.1
76031	2	780816	024306	001.64	007.98	0330.4	02.48	02.34	25.5	000.66	002.49	0230.7	04.15	37.47	001.28	006.20	0326.6	02.68	02.50	26.9
76031	3	781110	027590	001.38	007.94	0313.7	03.07	02.39	26.8	000.74	002.31	0221.7	04.36	38.96	001.19	005.35	0307.5	03.18	02.43	27.7
76031	4	790213	030597	001.65	012.41	0310.2	02.64	02.30	26.5	000.93	004.96	0223.4	04.16	37.87	001.41	008.89	0298.5	02.57	02.28	27.9
76032	0	780222	011413	001.43	012.95	0316.2	02.32	02.19	26.0	000.94	005.33	0217.1	04.47	38.82	001.22	009.69	0304.3	02.20	02.10	27.4
76032	M	780306	011588	001.33	012.19	0330.4	02.36	02.02	25.1	000.91	005.32	0232.5	04.27	36.38	001.10	009.48	0318.4	02.38	02.07	26.3
76032	1	780524	013643	001.46	012.05	0337.2	02.63	02.31	24.6	001.16	007.82	0232.4	04.64	35.70	001.18	009.29	0323.2	02.55	02.19	25.9
76032	2	780816	016122	001.36	011.56	0315.5	02.03	01.36	25.2	001.25	007.23	0218.7	03.95	37.89	001.19	009.85	0309.4	01.93	01.83	26.9
76032	3	781113	017352	001.32	012.35	0330.3	02.45	01.96	25.1	001.38	005.38	0229.8	04.49	36.69	001.12	007.79	0311.7	02.43	01.96	27.0
76032	4	790209	019357	000.98	012.90	0326.6	01.55	01.40	25.3	000.56	005.43	0210.2	03.01	40.05	000.94	009.75	0305.1	01.53	01.39	27.4
76033	0	780313	010070	002.08	037.27	0539.4	01.61	01.35	14.7	000.20	002.29	0417.9	01.93	21.01	001.51	028.95	0509.1	01.42	01.19	15.8
76033	M	780329	010351	000.67	006.48	0609.9	01.67	01.33	14.3	000.35	000.21	0441.7	01.96	20.05	000.30	002.85	0559.4	01.40	01.27	15.7
76033	1	780608	011390	000.61	004.98	0559.5	01.49	01.38	15.6	000.06	000.27	0399.1	01.66	22.19	000.25	001.45	0534.0	01.37	01.27	16.5
76033	2	780831	013474	000.63	005.77	0554.5	01.25	01.23	15.7	000.06	000.41	0395.0	01.30	22.41	000.28	002.72	0580.6	01.67	01.48	15.1
76033	3	781130	015407	000.74	006.78	0547.1	01.30	01.16	15.8	000.08	000.17	0407.0	01.53	21.76	000.33	002.50	0519.3	01.16	01.04	16.9
76033	4	790215	018033	001.21	009.05	0558.6	01.73	01.45	15.4	000.07	000.32	0406.4	01.81	21.78	000.65	002.56	0526.4	01.40	01.17	16.6
76034	0	780321	012801	002.48	040.22	0508.1	01.58	01.41	15.3	000.31	004.42	0417.0	01.83	20.87	001.98	036.18	0461.3	01.06	00.95	16.9
76034	M	780503	013697	000.47	005.25	0563.4	02.12	01.81	15.5	000.07	000.57	0427.2	02.36	20.71	000.19	001.02	0530.4	02.04	01.75	16.5
76034	1	780620	014950	000.56	005.66	0558.3	01.50	01.40	15.6	000.09	001.20	0408.0	01.54	21.62	000.44	003.20	0526.0	01.33	01.23	16.6
76034	2	780907	016046	000.70	008.24	0563.6	01.63	01.50	15.3	000.13	002.13	0425.6	01.67	20.66	000.41	003.78	0521.8	01.33	01.21	16.7
76034	3	781206	017639	000.61	006.55	0570.4	01.89	01.58	15.1	000.09	000.67	0444.8	02.41	19.88	000.27	001.27	0568.4	02.05	01.70	15.5
76034	4	790221	019027	000.94	010.92	0556.3	01.48	01.28	15.4	000.16	003.84	0445.0	01.51	19.64	000.59	004.98	0556.5	01.59	01.46	15.6
76035	0	780323	013351	001.94	038.37	0585.6	04.59	04.16	13.6	000.19	002.19	0449.9	04.39	19.54	001.87	037.69	0550.5	04.38	04.05	14.6
76035	M	780418	013791	000.72	009.54	0565.4	03.48	03.31	15.2	000.04	000.07	0437.6	03.95	20.25	000.47	001.37	0538.2	03.38	03.22	16.3
76035	1	780606	018761	000.69	007.01	0545.7	02.65	03.05	15.9	000.04	000.03	0415.6	02.43	21.33	000.37	001.87	0514.3	02.57	02.99	17.1
76035	2	780830	020460	001.21	012.43	0582.4	02.67	02.89	14.6	000.14	001.43	0459.5	03.09	19.19	000.69	006.89	0564.7	02.76	02.98	15.3
76035	3	781206	022599	000.62	009.04	0518.3	02.81	02.35	16.6	000.04	000.08	0421.3	03.78	21.03	000.42	003.33	0518.1	03.12	02.62	16.9
76035	4	790223	023613	000.83	010.46	0535.5	03.08	02.65	15.0	000.36	000.15	0394.4	03.30	22.46	000.29	001.10	0505.4	02.26	01.92	17.4
76036	0	780331	014701	000.66	003.47	0634.8	02.55	02.43	13.8	000.14	000.06	0459.3	02.27	19.29	000.59	004.39	0594.4	02.56	02.44	14.7
76036	M	780518	015873	001.41	013.53	0644.6	02.52	02.29	13.2	000.18	000.37	0464.1	02.35	19.06	000.92	006.87	0617.0	02.20	02.17	14.0
76036	1	780630	017092	000.94	006.51	0626.5	01.83	01.78	13.9	000.18	000.05	0433.5	01.77	20.42	000.67	002.41	0598.7	01.93	01.89	14.6
76036	2	780914	024307	001.95	017.54	0581.3	02.16	01.99	14.4	000.29	000.68	0428.2	02.13	20.62	001.92	015.24	0546.6	01.97	01.82	15.3
76036	3	781212	027021	001.91	014.92	0610.0	02.72	02.25	13.9	000.26	000.44	0465.7	03.18	18.98	001.36	009.17	0639.0	03.42	02.83	13.6
76036	4	790227	028671	002.17	021.34	0597.7	02.84	02.52	13.9	000.30	000.68	0459.4	02.88	19.22	002.08	015.28	0557.6	02.60	02.28	15.0
76037	0	780331	016825	003.86	042.00	0483.9	01.95	01.71	15.8	000.38	002.57	0408.2	02.58	21.45	002.60	033.91	0460.5	01.79	01.55	16.9
76037	M	780413	017052	000.70	003.69	0570.7	02.16	01.96	15.3	000.35	000.08	0411.3	02.23	21.54	000.48	003.12	0540.9	01.98	01.79	16.2
76037	1	780612	018282	000.59	002.40	0553.6	01.76	01.58	15.9	000.03	000.02	0392.7	01.76	22.58	000.38	003.16	0518.8	01.69	01.59	16.8
76037	2	780906	020413	002.26	035.86	0557.0	01.98	01.85	15.3	000.16	001.64	0417.5	02.43	21.09	002.14	025.39	0535.1	01.85	01.72	15.7
76037	3	781205	022214	002.10	019.32	0547.2	02.22	01.87	15.2	000.13	001.10	0401.9	02.63	21.95	000.74	007.87	0540.5	02.05	01.73	15.9
76037	4	790227	025374	002.30	015.62	0525.6	02.06	01.79	15.9	000.17	000.91	0406.7	02.37	21.70	002.30	024.35	0488.1	01.58	01.48	16.6
76038	0	780404	014292	002.20	034.94	0422.6	01.61	01.42	18.3	000.17	001.51	0373.4	03.14	23.57	002.46	027.93	0387.7	01.22	01.07	20.1
76038	M	780503	015796	001.26	038.39	0649.2	01.97	01.58	12.6	000.08	003.46	0516.2	02.07	16.99	001.39	032.93	0610.1	01.56	01.31	13.3
76038	1	780621	016603	000.91	013.01	0508.4	01.92	01.83	15.7	000.10	000.39	0366.8	02.67	24.12	000.81	004.60	0485.5	01.58	01.52	17.2
76038	2	780831	018010	001.09	017.59	0510.4	02.14	02.12	16.4	000.13	000.54	0380.4	02.82	23.23	001.71	010.83	0484.3	01.54	01.62	17.5
76038	3	781206	022499	001.16	016.56	0488.1	01.90	01.59	17.1	000.11	000.68	0354.1	02.71	24.95	000.98	010.34	0460.3	01.59	01.33	18.4
76038	4	790223	024050	001.46	017.16	0511.7	01.94	01.72	15.3	000.15	000.78	0364.9	02.42	24.19	001.53	011.56	0470.0	01.46	01.31	17.9
76039	0	780419	020337	001.60	018.13	0582.2	01.47	01.34	14.4	000.15	001.57	0443.6	01.52	19.80	001.14	010.94	0548.7	01.43	01.32	15.5
76039	M	780503	021259	000.61	005.37	0588.6	01.68	01.42	14.8	000.07	000.28	0421.2	01.71	21.02	000.47	004.30	0538.9	01.73	01.47	16.2
76039	1	780713	026088	000.55	003.92	0630.8	01.07	01.05	13.9	000.06	001.18	0510.3	01.20	17.31	000.96	008.23	0597.1	01.13	01.10	14.4
76039	2	780925	029765	001.59	010.94	0561.6	04.93	05.30	15.2	000.18	000.66	0399.9	05.03	22.09	000.87	007.23	0518.2	04.74	05.07	16.6
76039	3	781220	034113	000.82	006.67	0604.3	01.21	01.05	14.5	000.07	000.34	0424.9	01.14	20.83	000.75	004.77	0555.3	01.26	01.10	15.9
76039	4	790306	036684	001.18	007.21	0550.7	01.06	01.32	15.7	000.10	000.53	0426.1	01.24	20.76	000.84	007.29	0515.1	01.16	01.14	16.7
76040	0	780728	012840	001.21	012.46	0583.9	01.48	01.44	14.6	000.15	001.52	0410.9	01.70	21.43	000.91	009.71	0542.4	01.44	01.42	15.8
76040	M	780821	013100	000.62	006.07	0690.2	00.97	00.93	12.6	000.08	001.25	0484.4	01.30	18.22	000.80	007.71	0632.9	00.94	00.93	13.6
76040	1	781109	016664	000.49	003.86	0674.2	01.13	00.94	13.0	000.08	000.11	0493.7	01.31	17.95	000.68	006.21	0629.6	01.15	00.96	13.8
76040	2	790209	017477	000.66	006.45	0668.6	00.96	00.35	13.3	000.08	000.92	0457.1	00.93	19.33	000.74	010.28	0618.3	00.94	00.83	13.9
76041	0	780816	010653	001.48	023.96	0345.1	02.52	02.55	22.9	000.96	013.34	0234.7	03.25	34.28	001.31	020.53	0330.7	02.31	02.35	24.1
76042	0	780929	005168	002.64	045.71	0457.6	01.39	01.37	16.5	000.29	002.44	0374.1	02.20	23.41	002.89	033.78	0439.1	01.39	01.41	17.6
76042	M	781019	005386	002.62	090.30	0625.0	00.49	00.45	11.4	000.78	051.16	0382.1	00.55	19.05	002.59	091.14	0578.1	00.31	00.38	13.1
76042	1	790119	006274	002.40	075.12	0593.7	00.47	00.40	12.3	000.91	042.56	0436.7	00.64	17.51	002.24	061.25	0569.4	00.34	00.33	13.1
76042	2	790327	006960	002.45	050.10	0490.1	00.85	00.76	15.4	000.42	012.59	0386.9	01.72	21.73	002.04	041.63	0465.2	00.73	00.65	16.5
76042	3	790814	009008	001.84	048.96	0508.8	00.77	00.78	15.0	000.31	010.02	0404.4	01.60	21.06						
76042	4	791019	011463	001.99	047.21	0464.6	00.68	00.62	15.3	000.27	009.81	0355.4	01.20	23.86						

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 PORTLAND FAIL

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
76043	0	781005	015942	001.26	024.41	0567.4	01.89	01.56	14.5	000.05	000.59	0452.4	02.20	19.55	001.37	029.41	0563.1	01.93	01.60	16.4
76043	M	781026	016792	000.32	002.27	0606.5	01.82	01.33	14.5	000.33	000.00	0452.8	01.63	19.58	000.15	001.63	0570.5	01.56	01.40	15.6
76043	1	781228	018990	000.33	005.21	0634.5	02.11	01.70	13.8	000.03	000.00	0473.7	02.50	18.72	000.16	000.59	0590.5	02.18	01.76	14.9
76043	2	790314	021976	000.42	003.31	0567.8	01.26	01.15	15.4	000.04	000.00	0419.6	01.09	21.13	000.32	001.91	0535.3	01.14	01.05	16.4
76043	3	790904	028929	000.43	005.91	0553.5	01.35	01.32	15.7	000.04	000.01	0407.0	01.31	21.78						
76044	0	781006	011061	002.23	041.98	0486.9	04.57	03.96	15.8	000.12	001.88	0395.4	03.62	22.24	002.37	032.09	0476.9	05.73	05.09	16.5
76044	M	781110	012128	001.29	013.51	0475.7	06.37	05.33	17.7	000.38	000.30	0375.7	05.42	23.56	000.36	002.47	0450.2	06.71	05.25	19.6
76044	1	790116	013425	000.82	005.67	0457.2	06.31	05.37	18.7	000.09	000.58	0353.4	04.50	25.01	000.38	002.13	0439.5	06.32	05.37	19.9
76044	2	790329	015618	002.78	044.57	0446.3	04.13	03.59	15.9	001.40	022.97	0325.0	02.75	24.26	001.90	024.78	0439.9	03.56	03.06	18.2
76045	0	781009	011490	001.79	043.86	0504.6	01.14	01.07	15.3	000.14	003.18	0381.0	01.52	22.95	001.57	030.98	0480.2	01.01	00.96	16.6
76045	M	781030	011841	000.98	016.69	0529.0	01.43	01.19	15.9	000.07	000.31	0382.8	01.78	23.12	000.19	003.39	0493.0	01.21	01.02	17.7
76046	0	781031	025566	001.91	021.78	0351.1	02.09	01.75	22.7	000.69	004.43	0221.0	02.36	38.54	001.93	030.70	0318.4	02.17	01.82	23.7
76046	M	781113	025783	001.60	006.99	0346.2	02.45	01.93	24.5	000.87	003.35	0226.1	03.27	37.88	001.67	012.10	0315.6	02.57	02.03	26.3
76046	1	790302	028238	002.19	012.57	0320.4	02.57	02.15	25.6	001.25	004.60	0224.0	03.51	37.71	001.96	013.15	0313.1	02.53	02.12	26.0
76047	0	781228	007194	002.26	029.38	0549.7	04.62	03.79	14.7	000.23	003.99	0530.6	04.68	16.50	001.75	023.24	0553.8	04.45	03.62	14.8
76047	M	790119	007423	001.50	024.28	0504.5	03.37	02.91	15.2	000.21	004.57	0429.3	03.88	20.28	000.95	020.78	0477.7	02.93	02.51	17.2
76047	1	790328	008193	001.47	026.45	0564.6	04.73	04.35	14.5	000.43	012.50	0462.9	04.60	18.32	001.01	026.75	0535.6	03.91	03.36	15.2
76048	0	790119	011128	001.34	025.48	0522.3	01.50	01.29	15.7	000.10	001.62	0377.4	01.62	23.32	000.98	020.14	0492.1	01.11	00.95	16.8
76048	M	790207	011689	001.18	011.13	0540.6	01.68	01.55	15.8	000.36	000.65	0383.0	01.59	23.08	000.96	004.23	0510.5	01.59	01.22	17.3
76048	1	790329	013776	000.55	010.10	0527.0	01.49	01.29	16.3	000.06	000.29	0372.0	01.44	23.80	000.49	005.35	0498.9	01.23	01.06	17.4

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

					FTP						HFET						HS FTP			
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
27001	0	780502	072626	005.51	051.75	0477.4	06.25	05.65	15.4	002.14	006.70	0404.2	09.55	21.03	005.06	048.45	0432.5	06.11	05.39	16.7
27001	1	780818	077740	006.01	053.64	0493.6	06.18	05.71	14.9	002.22	009.01	0435.2	08.86	19.43	005.99	050.35	0465.0	06.12	05.73	15.7
27001	2	781109	081538	004.19	050.93	0494.3	06.61	05.51	15.1	001.82	008.01	0444.2	09.55	19.17	004.46	051.51	0476.3	06.45	05.43	15.5
27001	3	790214	085258	004.70	053.16	0450.9	06.53	05.50	15.0	001.80	010.10	0413.0	09.27	20.41	005.12	055.80	0471.2	06.63	05.53	15.4
27002	0	771007	044256	004.33	050.14	0395.3	03.84	03.93	18.0	001.52	006.41	0334.2	04.85	25.40	004.06	045.55	0383.3	03.68	03.76	18.9
27002	1	780331	048772	004.67	049.46	0420.5	05.05	04.49	17.3	001.80	007.70	0359.7	06.34	23.49	004.57	048.41	0405.1	04.32	04.43	17.3
27002	2	780705	051051	005.10	056.19	0421.6	03.69	03.44	16.9	001.81	007.93	0359.7	05.43	23.46	004.52	046.93	0401.1	03.85	03.62	18.1
27002	3	780922	053606	004.94	052.41	0460.4	05.19	04.47	15.9	001.82	008.23	0379.0	06.06	22.30	004.59	050.84	0421.2	04.56	04.29	17.2
27002	4	781229	056441	003.97	047.16	0437.6	03.07	02.44	16.9	001.39	008.99	0354.7	03.66	23.76	005.03	057.84	0387.1	02.78	02.20	17.9
27003	0	771104	070977	003.85	075.84	0392.8	04.41	04.93	16.9	001.86	018.00	0348.9	05.46	23.15	003.13	063.50	0376.0	04.19	04.81	18.2
27003	1	780410	075179	003.87	074.48	0404.2	06.25	05.53	15.5	001.67	015.21	0360.5	08.22	22.76	003.67	069.63	0374.2	05.35	05.24	17.3
27003	2	780821	080854	004.08	080.24	0413.0	02.76	02.63	16.1	001.52	018.27	0359.6	03.27	22.56	003.56	072.52	0397.2	02.53	02.41	16.9
27003	3	781110	083831	003.21	061.09	0460.9	04.21	03.31	15.6	000.93	012.39	0374.3	04.42	22.35	[illegible]	056.25	0432.8	01.73	02.36	16.7
27003	4	790213	086709	003.86	081.20	0393.8	03.26	02.85	15.6	001.32	017.72	0356.1	03.85	22.85	003.07	073.66	0366.8	02.96	02.56	18.0
27004	0	771205	053948	015.73	046.55	0476.4	07.04	05.08	14.8	001.74	008.61	0414.5	08.30	20.46	003.00	039.24	0515.3	07.13	06.04	15.1
27004	1	780424	056858	003.45	053.37	0553.7	07.28	06.44	13.7	001.55	008.76	0436.1	08.16	19.50	002.99	050.68	0516.5	06.58	05.84	14.6
27004	2	780818	059311	003.00	047.79	0541.8	06.56	06.56	14.2	001.37	007.26	0420.5	07.79	20.33	002.65	044.19	0514.8	06.21	06.31	14.9
27004	3	781110	061293	003.53	049.67	0544.9	08.06	06.47	14.0	001.24	005.59	0422.7	09.76	20.37	002.70	038.70	0545.5	07.97	06.32	14.4
27004	4	790212	064370	003.02	039.94	0549.6	06.46	05.85	14.3	001.57	007.85	0409.5	08.07	20.78	003.01	039.61	0519.6	06.16	05.56	14.9
27005	0	771227	062387	003.67	057.63	0521.4	05.89	04.85	14.2	001.40	007.37	0371.9	05.93	22.86	002.92	038.10	0521.7	05.81	04.83	15.0
27005	1	780427	066940	014.45	010.73	0528.5	05.80	05.59	13.5	007.36	005.36	0412.3	07.31	19.75	013.78	005.82	0506.6	05.52	05.11	15.8
27005	2	780724	066965	012.75	013.73	0532.6	05.64	05.70	14.9	008.91	004.87	0386.8	06.56	20.98	012.67	008.83	0514.2	05.54	05.67	15.6
27005	3	781011	069506	011.98	012.89	0581.0	08.15	07.47	13.9	006.91	004.26	0430.5	08.60	19.31	011.71	008.04	0542.5	08.04	07.46	14.7
27005	4	790104	070616	007.99	008.75	0565.8	07.76	06.15	14.7	004.46	003.48	0406.7	08.09	20.80	008.19	007.93	0530.8	07.26	05.76	15.5
27006	0	771228	030585	001.75	039.95	0491.9	04.88	03.98	15.8	000.75	007.93	0386.2	07.84	22.11	001.56	032.71	0466.0	04.48	03.67	16.9
27006	1	780427	031905	001.31	022.75	0512.4	04.59	04.61	15.3	000.82	008.43	0413.5	07.90	20.66	002.47	023.25	0486.7	03.90	03.77	16.7
27006	2	780725	032998	001.82	027.46	0506.1	04.11	04.37	16.0	000.94	009.29	0391.4	07.30	21.68	001.85	022.93	0489.0	03.69	03.95	16.7
27006	3	781012	033910	002.02	018.32	0525.2	05.51	04.85	15.8	000.74	006.62	0419.6	09.32	20.51	001.77	014.89	0494.9	04.90	04.33	16.3
27006	4	790112	034783	002.06	020.45	0514.5	04.78	04.06	15.0	000.80	007.52	0389.4	07.11	21.96	002.08	019.54	0482.7	04.08	03.49	17.0
27007	0	780121	070952	006.19	107.49	0582.7	05.30	04.61	11.5	002.18	027.94	0467.6	08.04	17.11	004.25	082.19	0542.3	06.97	06.08	12.9
27008	0	780126	040769	003.48	051.43	0315.9	03.25	02.75	21.7	000.80	006.61	0240.1	05.07	35.05	002.92	048.74	0302.6	03.00	02.53	22.8
27008	1	780511	042481	002.95	045.46	0351.8	04.56	04.37	23.5	000.83	007.30	0272.4	06.50	30.95	002.39	044.89	0336.2	04.25	03.93	21.6
27008	2	780803	043932	002.90	046.44	0324.9	03.10	02.98	21.8	000.78	006.41	0246.2	04.79	34.27	002.51	043.60	0322.6	03.06	02.96	22.2
27009	0	780128	056833	002.97	021.36	0343.5	05.28	04.57	22.9	001.35	004.56	0259.2	06.66	32.77	002.72	015.81	0327.6	05.16	04.46	24.5
27009	1	780515	057132	007.62	014.33	0359.3	05.62	05.15	21.3	001.70	003.40	0264.1	06.62	32.26	005.87	009.71	0362.0	05.41	04.92	22.6
27010	0	780128	058924	002.61	030.42	0381.1	03.71	03.19	20.3	001.12	005.66	0288.7	05.83	29.45	001.97	022.32	0373.9	03.72	03.22	21.3
27010	1	780510	061922	002.86	013.28	0395.0	03.93	03.53	23.9	001.38	003.72	0283.8	05.91	30.26	002.84	010.08	0375.1	03.62	03.08	22.1
27010	2	780801	064910	003.12	045.02	0363.2	02.88	02.72	23.0	001.53	011.86	0274.9	04.74	29.72	002.76	041.95	0354.5	02.89	02.71	20.6
27010	3	781108	069638	004.04	036.14	0366.3	04.10	03.43	23.3	001.95	009.49	0261.8	05.92	31.34	003.37	030.18	0345.7	03.97	03.35	21.9
27010	4	790214	072948	004.52	049.07	0325.8	04.09	03.48	21.3	002.15	013.04	0256.1	06.03	31.30	003.82	038.07	0314.2	04.35	03.71	22.9
27011	0	780130	043538	003.78	037.91	0348.0	01.28	01.06	21.1	001.78	011.81	0267.7	01.82	30.38	002.91	025.02	0331.9	01.28	01.06	23.3
27012	0	780202	083542	004.15	017.28	0367.4	04.02	03.52	21.8	001.60	005.56	0261.3	05.26	32.24	003.69	011.44	0328.9	03.42	03.01	24.7
27013	0	780215	089897	003.27	047.50	0583.8	04.06	03.50	13.3	002.05	012.34	0456.9	06.23	18.37	002.70	031.44	0549.4	04.12	03.54	14.6
27013	1	780821	095983	003.63	053.46	0547.7	03.20	03.35	13.8	002.39	016.59	0432.3	05.40	19.03	002.93	032.75	0531.2	03.52	03.73	14.3
27013	2	781110	097539	003.15	044.64	0556.1	03.77	03.01	13.9	001.88	011.00	0442.2	05.81	19.05	002.67	026.01	0535.4	04.04	03.20	15.1
27013	3	790215	099749	003.87	047.47	0538.6	05.02	04.11	14.2	001.71	013.19	0415.1	07.72	20.07	002.85	025.85	0517.1	05.48	04.49	15.6
27014	0	780217	042443	003.99	065.80	0565.8	03.84	03.54	13.3	001.64	012.00	0437.6	05.41	19.21	003.07	050.28	0541.2	04.13	03.81	14.0
27014	1	780531	048935	003.43	064.34	0546.9	03.75	03.25	13.5	001.48	014.63	0420.5	05.52	19.79	004.40	062.76	0515.4	03.90	03.38	14.1
27014	2	780823	055420	004.05	068.94	0578.2	03.51	03.32	12.7	001.59	015.59	0419.7	04.57	19.74	003.72	063.55	0537.6	03.58	03.39	13.6
27014	3	781115	060600	003.61	051.75	0628.8	04.80	03.86	12.3	001.35	009.83	0459.6	05.61	18.50	003.44	046.29	0591.3	04.82	03.86	13.1
27014	4	790301	070130	006.99	093.43	0532.4	05.70	04.82	12.6	002.07	018.90	0437.3	07.55	18.73	006.39	087.90	0502.2	05.77	04.84	13.4
27015	0	780218	041940	005.24	097.38	0278.9	01.43	01.32	19.8	001.50	031.48	0221.8	02.61	32.12	004.54	093.09	0277.3	01.37	01.31	20.2
27016	0	780224	067504	004.67	043.24	0628.7	05.37	05.16	12.5	001.52	006.98	0441.9	07.70	19.37	002.58	033.77	0611.8	05.33	05.19	13.1
27017	0	780224	045661	002.84	057.88	0595.0	05.23	05.05	12.7	001.44	008.84	0446.0	07.05	19.09	002.21	038.15	0575.7	05.59	05.48	13.8
27017	1	780602	103020	003.20	049.29	0634.2	05.85	05.70	12.3	001.72	009.62	0461.6	07.43	18.37	002.88	036.40	0596.3	05.71	05.83	13.3
27017	2	780831	106606	003.81	066.61	0661.9	06.29	06.17	11.4	001.90	011.15	0481.1	09.17	17.57	003.42	058.69	0635.5	06.20	06.03	12.0
27017	3	781127	111711	003.07	063.85	0618.4	06.61	05.61	12.2	001.43	008.04	0448.4	08.71	19.05	002.86	052.19	0593.7	06.56	05.39	12.9
27017	4	790306	115219	002.97	039.94	0676.6	05.60	05.25	11.8	001.44	006.24	0481.6	08.48	17.88	002.81	034.94	0632.8	05.81	05.44	12.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
27018	0	780227	084831	004.03	067.90	0705.8	04.93	04.62	10.7	001.34	012.83	0542.5	06.33	15.64	003.24	048.90	0688.5	05.37	05.11	11.4
27018	1	780531	088454	003.44	051.20	0687.6	05.99	05.31	11.4	001.79	015.35	0536.7	10.36	15.65	003.08	038.64	0700.1	07.95	07.61	11.5
27018	2	780908	094678	003.97	051.08	0707.3	08.56	07.72	11.1	001.97	013.01	0553.2	11.08	15.29	004.16	048.63	0647.9	08.21	07.41	12.0
27018	3	781220	098095	003.84	052.24	0670.4	08.57	07.31	11.6	001.75	010.82	0533.9	10.65	15.94	003.41	045.27	0616.0	07.92	06.53	12.6
27018	4	790322	100617	003.63	044.38	0735.3	08.77	07.44	10.9	001.43	010.79	0563.5	02.57	15.16	003.44	045.22	0677.7	08.18	06.94	11.6
27019	0	780228	025202	002.82	037.78	0657.5	06.86	06.41	12.2	001.27	006.40	0458.5	08.04	18.76	002.77	033.28	0630.9	07.00	06.55	12.8
27019	1	780601	026590	002.46	040.39	0656.4	06.70	05.36	12.2	001.28	006.77	0466.4	07.91	18.43	002.62	032.61	0630.5	06.38	06.33	12.3
27019	2	780825	027996	003.37	064.96	0615.7	06.48	06.33	12.1	001.29	008.70	0464.6	07.75	18.38	003.66	062.95	0594.1	06.66	06.38	13.2
27019	3	781117	029464	002.78	035.87	0636.3	05.60	04.81	12.6	001.02	005.06	0463.2	06.60	18.70	002.40	026.40	0601.3	05.46	04.73	13.6
27019	4	790222	030921	003.20	038.71	0668.8	06.45	05.47	12.0	001.12	006.35	0461.0	06.98	18.69	002.64	024.08	0638.4	06.49	05.56	12.9
27020	0	780322	057794	002.83	035.33	0528.3	03.24	02.85	15.0	001.63	007.40	0392.3	04.82	21.68	002.76	024.70	0514.5	04.63	04.06	15.7
27020	1	780525	059877	002.92	036.05	0574.3	03.68	03.31	13.7	001.75	007.84	0426.6	05.46	19.95	002.65	024.45	0549.0	03.57	03.15	14.3
27020	2	780815	061820	003.91	036.68	0560.5	02.80	02.94	14.1	001.97	010.16	0414.6	04.36	20.30	003.35	033.70	0533.3	02.77	02.85	14.8
27020	3	781106	063474	002.92	031.06	0523.2	04.56	03.78	15.3	001.85	006.11	0387.4	07.15	22.01	002.58	021.87	0510.5	04.52	03.83	16.0
27020	4	790208	065020	003.76	068.75	0495.2	03.22	02.94	14.4	001.59	010.01	0380.1	04.77	22.12	003.27	052.82	0487.9	03.22	02.89	15.2
27021	0	780301	056621	003.19	048.09	0354.7	03.78	03.59	20.1	001.26	028.25	0258.6	04.32	28.89	002.01	040.78	0327.2	03.48	03.32	22.3
27021	1	780530	060532	002.77	060.62	0347.8	02.95	02.57	19.6	001.36	036.43	0252.7	03.21	28.22	001.90	055.46	0327.7	02.77	02.43	21.0
27021	2	780921	061997	003.41	071.74	0378.6	02.65	02.47	17.7	001.37	040.94	0276.0	03.13	25.73	002.30	063.66	0346.6	02.39	02.28	19.5
27021	3	790104	062908	003.12	050.32	0338.5	03.64	02.86	20.7	001.20	023.05	0251.4	03.93	30.43	002.10	048.31	0314.2	03.18	02.66	22.3
27021	4	790330	063630	002.56	046.92	0362.7	03.36	02.89	19.9	001.10	022.33	0270.5	03.84	28.69	002.30	041.66	0335.3	03.09	02.67	21.7
27022	0	780302	080626	003.26	040.65	0587.2	04.88	04.62	13.4	001.64	012.70	0430.7	06.27	19.45	002.73	032.02	0556.7	04.60	04.44	14.6
27022	1	780605	082772	003.67	038.68	0602.8	04.35	04.32	13.1	001.73	015.74	0419.6	05.85	19.69	003.76	041.14	0600.1	04.56	04.53	13.1
27022	2	780825	085021	003.58	051.19	0571.5	03.49	03.31	13.4	001.98	024.28	0409.6	04.87	19.53	003.17	041.91	0574.0	03.55	03.33	13.6
27022	3	781120	087516	003.60	056.07	0556.6	03.83	03.11	13.5	002.17	029.26	0422.2	04.94	18.67	003.17	045.60	0530.6	03.56	02.77	14.4
27022	4	790302	090352	029.05	058.98	0500.9	04.28	03.59	12.9	020.45	031.73	0380.9	05.25	17.89	026.97	057.41	0462.7	03.60	03.02	13.8
27023	0	780306	063017	003.51	054.30	0575.5	02.93	02.51	13.1	002.18	020.54	0411.2	05.67	19.69	003.32	046.47	0559.7	02.79	02.39	13.7
27023	1	780616	066279	002.58	044.26	0595.0	03.21	02.83	13.2	001.83	017.20	0413.9	06.33	19.35	002.52	042.86	0589.4	03.84	03.37	13.3
27023	2	780818	070237	002.88	050.57	0589.3	03.13	03.18	13.1	002.02	020.12	0420.2	05.82	19.35	002.60	047.67	0559.9	02.88	02.92	13.7
27023	3	781109	078278	002.82	048.22	0644.3	03.18	02.58	12.2	001.21	018.37	0478.2	03.47	17.36	002.64	047.57	0601.1	02.76	02.47	12.9
27023	4	790212	087092	003.13	053.06	0619.5	02.58	02.34	12.4	002.45	023.78	0405.5	05.54	19.68	002.96	050.97	0572.8	02.63	02.39	13.3
27024	0	780308	055193	024.12	301.28	0440.0	00.63	00.56	09.0	004.50	146.05	0324.6	00.94	15.60	012.73	225.57	0432.5	00.78	00.69	10.7
27024	1	780629	058188	002.39	025.02	0559.0	04.06	03.75	15.5	001.37	009.17	0430.1	05.85	19.80	002.11	024.20	0528.2	04.23	04.11	15.4
27024	2	781002	060084	003.61	043.82	0585.3	04.37	03.98	13.3	001.16	012.39	0441.3	05.56	19.09	002.68	036.62	0535.8	04.25	03.89	14.7
27024	3	781220	061199	003.03	035.74	0618.2	04.85	04.34	13.0	000.91	008.56	0468.8	06.49	18.28	002.52	028.73	0582.6	05.13	04.28	13.9
27024	4	790327	063314	003.07	034.61	0576.8	03.73	03.29	13.8	001.13	011.09	0443.7	05.26	19.08	002.58	033.70	0534.8	03.93	03.51	14.8
27025	0	780310	050526	004.02	025.71	0401.3	04.22	03.50	19.5	000.76	010.63	0298.5	05.65	27.92	005.71	019.83	0386.0	03.88	03.23	20.3
27025	1	780606	051785	004.34	027.41	0378.1	03.25	03.36	21.4	001.32	008.11	0290.3	05.49	28.95	003.80	017.11	0379.1	03.67	03.77	21.2
27025	2	780825	054924	003.62	023.21	0402.0	03.82	03.59	19.7	000.78	008.20	0287.0	05.45	29.35	004.32	017.52	0384.6	03.73	03.52	20.8
27025	3	781116	056496	004.33	026.96	0406.6	04.18	03.67	19.2	001.22	008.33	0280.2	05.58	29.84	004.71	019.88	0372.9	03.83	03.38	21.1
27025	4	790223	057917	003.93	020.87	0392.3	04.32	03.70	20.3	001.13	008.54	0286.5	06.38	29.22	003.43	015.41	0374.4	03.96	03.43	21.6
27026	0	780314	076886	002.64	028.18	0345.6	03.19	02.69	22.0	001.37	009.34	0253.8	04.88	32.50	002.31	029.13	0326.7	02.87	02.44	23.3
27026	1	780630	080160	002.38	025.12	0344.1	02.51	02.38	22.7	001.39	011.57	0224.5	03.63	35.89	002.14	024.79	0323.0	02.76	02.16	24.0
27026	2	781006	083139	002.43	028.96	0358.2	02.50	02.22	21.6	001.19	009.25	0254.4	04.07	32.52	001.83	024.27	0357.7	02.10	02.04	22.0
27026	3	781221	084246	002.33	031.23	0354.5	02.72	02.35	21.6	000.97	008.22	0246.3	03.66	33.82	002.11	030.12	0339.4	02.56	02.21	22.5
27026	4	790326	086306	002.09	027.81	0341.4	02.24	01.98	22.6	001.39	012.30	0233.9	02.86	34.55	001.85	024.41	0326.0	02.05	01.81	23.9
27027	0	780313	066366	002.46	011.24	0552.8	05.18	04.26	15.3	001.24	003.20	0405.2	07.24	21.41	001.99	003.95	0523.7	04.39	03.60	16.5
27027	1	780609	068497	001.88	008.85	0529.8	03.40	03.20	15.1	001.37	003.31	0374.2	05.66	23.14	001.91	004.13	0503.0	03.10	02.36	17.7
27028	0	780315	070749	004.97	073.08	0330.1	03.55	02.97	17.2	001.42	024.23	0273.3	04.95	28.07	004.65	071.13	0307.5	03.12	02.67	20.4
27028	1	780607	072831	005.08	028.05	0356.7	02.65	02.72	21.3	000.97	009.74	0279.2	02.93	29.80	004.77	029.76	0317.6	02.46	02.56	22.2
27028	2	780829	076092	004.62	035.95	0366.6	02.69	02.67	23.3	001.21	016.29	0273.5	03.24	29.28	004.37	039.34	0336.0	02.40	02.45	21.5
27028	3	781128	078975	003.70	027.09	0364.6	03.26	02.91	21.2	001.06	011.84	0275.1	03.61	29.85	003.42	025.13	0344.3	02.39	02.57	22.4
27028	4	790227	081119	003.52	034.99	0358.6	02.92	02.53	20.9	001.18	015.54	0274.0	03.76	29.35	003.29	032.37	0338.9	02.75	02.38	22.1
27029	0	780318	096693	005.94	145.05	0632.6	02.04	01.76	10.1	002.51	059.72	0507.7	02.39	14.55	005.58	136.58	0592.2	02.11	01.79	10.7
27029	1	780626	100130	004.60	113.22	0613.6	02.17	02.37	11.0	002.10	046.79	0503.9	02.50	15.18	004.45	102.19	0595.9	02.18	02.25	11.5
27029	2	780913	104909	006.71	145.60	0620.9	02.20	02.06	10.2	002.53	063.41	0487.3	02.09	14.91	004.72	109.16	0623.6	02.32	02.18	10.9
27029	3	781206	107836	005.42	141.03	0651.5	02.42	02.01	10.0	001.73	046.38	0518.0	02.71	14.87	003.35	097.65	0627.5	02.55	02.11	11.2
27029	4	790308	110719	004.99	183.36	0617.7	01.26	01.07	09.6	002.73	127.64	0442.0	01.34	13.62	005.06	184.23	0577.3	01.25	01.06	10.0
27030	0	780318	063366	002.14	028.07	0265.2	03.75	03.28	27.7	000.85	002.94	0254.8	05.58	33.83	001.81	013.98	0270.6	04.12	03.58	29.7
27030	1	780617	065332	002.71	034.87	0300.5	03.67	03.15	24.4	000.97	003.17	0248.2	05.53	34.61	002.02	018.81	0275.0	03.52	03.31	28.5
27030	2	780908	066994	002.83	037.47	0294.4	03.59	03.22	24.5	001.06	003.71	0252.2	06.01	33.93	002.23	020.96	0270.9	03.82	03.39	28.5
27030	3	781206	068527	005.03	118.35	0256.0	01.95	01.55	19.4	001.19	004.12	0251.6	07.13	33.87	001.68	008.07	0275.6	04.27	03.59	30.1
27030	4	790320	069776	001.81	012.00	0295.9	04.34	03.83	27.3	000.87	002.28	0264.7	07.14	32.72	001.75	008.74	0273.1	04.41	03.82	30.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
27031	0	780324	049474	001.99	022.11	0824.2	06.21	05.56	10.2	001.10	003.98	0533.7	07.88	16.32	001.59	016.31	0744.6	05.49	04.95	11.6
27031	1	780626	050598	001.76	023.48	0726.0	06.48	06.21	11.5	001.00	003.80	0456.1	09.86	19.06	001.64	020.30	0696.8	06.55	06.33	12.3
27031	2	780925	053579	002.11	027.41	0847.6	05.70	05.68	09.9	001.13	004.27	0530.8	08.36	16.39	001.83	021.34	0776.7	05.29	05.29	10.8
27031	3	781216	054840	001.95	019.63	0785.9	05.80	04.94	10.8	000.97	003.68	0495.2	08.85	17.59	001.58	016.82	0728.0	05.92	05.03	11.6
27031	4	790328	055747	001.79	022.64	0813.0	05.84	05.21	10.4	001.04	004.24	0525.9	09.68	16.55	001.74	018.79	0743.5	06.15	05.52	11.3
27032	0	780321	049519	002.55	058.47	0766.7	03.83	03.31	10.2	001.18	026.54	0594.5	04.79	13.86	002.18	045.34	0761.6	04.44	03.92	10.5
27032	1	780621	051850	002.51	058.73	0781.5	03.41	03.22	10.1	001.18	025.66	0625.4	04.33	13.25	002.31	050.96	0721.9	03.21	03.02	10.9
27032	2	780918	054486	002.43	060.94	0772.0	03.82	03.36	10.1	001.56	040.13	0608.6	04.69	13.11	002.26	049.95	0736.6	03.71	03.28	10.7
27032	3	781208	055627	002.42	057.13	0769.0	03.95	03.26	10.2	001.35	024.46	0602.8	05.13	13.76	002.15	044.84	0729.9	04.00	03.26	10.9
27032	4	790313	057544	002.51	054.10	0742.5	03.66	03.13	10.6	001.16	025.91	0577.8	04.62	14.25	002.26	046.89	0664.0	03.29	02.85	11.9
27033	0	780321	068708	001.98	071.29	0723.3	03.11	02.69	10.5	000.62	014.62	0535.2	05.04	15.83	001.56	059.63	0693.4	03.16	02.74	11.2
27033	1	780612	070831	002.71	084.00	0755.6	03.23	03.33	09.9	000.73	017.41	0517.2	04.62	16.22	002.52	086.91	0679.2	02.44	02.31	10.7
27033	2	780831	073238	002.75	097.95	0763.9	02.19	02.11	09.6	000.47	013.81	0611.1	02.96	13.98	001.98	066.19	0739.4	02.55	02.50	10.4
27033	3	781128	076209	001.86	080.77	0912.7	02.35	02.00	08.5	000.44	011.37	0583.6	02.42	14.71	002.41	087.71	0661.9	01.55	01.33	10.9
27033	4	790306	079468	002.77	102.69	0815.2	02.08	01.96	09.0	000.16	012.34	0637.8	02.62	13.48	002.18	090.30	0723.2	01.79	01.69	10.1
27034	0	780321	080910	004.01	028.34	0331.0	03.84	03.34	22.8	001.12	004.09	0284.0	05.41	30.17	003.17	023.17	0294.1	03.64	03.17	26.0
27034	1	780613	083218	003.69	028.37	0302.7	03.19	02.87	24.7	001.39	004.23	0258.3	04.57	33.04	003.29	024.23	0283.7	03.15	02.87	26.5
27034	2	780911	086088	004.25	030.50	0321.9	03.25	03.04	23.1	001.12	004.59	0271.1	04.56	31.48	003.83	026.91	0292.0	03.10	02.87	25.6
27034	3	781205	088374	004.16	026.79	0296.5	03.08	02.58	25.2	001.10	003.70	0255.6	03.55	33.47	003.55	025.59	0271.0	02.95	02.53	27.5
27034	4	790309	089845	003.92	025.44	0299.7	04.52	03.80	25.2	001.70	007.68	0245.9	05.28	33.67	004.10	020.78	0267.8	04.27	03.59	28.2
27035	0	780321	076806	001.59	006.67	0802.2	05.17	04.60	10.8	000.73	002.76	0560.7	08.35	15.63	001.42	004.03	0776.1	05.17	04.63	11.2
27035	1	780612	077946	001.43	005.17	0748.6	04.65	04.37	11.6	000.75	002.53	0482.5	07.55	18.14	001.31	003.84	0688.6	04.52	04.36	12.5
27035	2	780901	079123	001.66	006.07	0826.3	05.23	05.08	10.5	000.79	002.64	0556.7	09.08	15.74	001.81	005.01	0777.5	05.58	05.43	11.2
27035	3	781129	080345	001.40	006.28	0851.0	05.75	05.34	10.2	000.63	002.70	0588.4	09.03	14.91	001.55	004.31	0759.7	04.51	03.88	11.5
27035	4	790301	081465	001.39	006.79	0812.3	05.99	05.16	10.7	000.77	002.47	0519.5	08.78	16.87	001.43	004.16	0740.9	04.87	04.15	11.7
27036	0	780324	084207	004.26	033.94	0669.9	06.93	06.40	13.1	001.58	004.96	0490.1	07.47	17.62	004.14	027.35	0580.6	06.85	06.31	13.9
27036	1	780615	087376	004.00	042.58	0588.8	06.46	06.15	13.3	001.34	016.77	0433.9	06.87	19.01	003.73	030.33	0543.1	05.85	05.45	14.6
27036	2	780927	092184	003.33	046.41	0614.8	03.11	02.94	12.7	001.04	008.13	0494.8	04.29	17.36	003.03	041.35	0597.4	03.06	02.90	13.2
27036	3	781219	095469	004.17	053.87	0643.1	04.22	03.34	12.0	001.21	007.41	0490.7	05.37	17.52	003.89	045.50	0602.7	04.25	03.53	12.9
27036	4	790321	097708	003.57	041.10	0602.1	03.47	03.02	13.1	001.32	008.00	0477.4	04.84	17.95	003.90	044.35	0551.2	03.58	03.10	14.0
27037	0	780331	050641	003.06	022.12	0591.0	03.91	03.30	14.0	001.89	006.39	0450.9	07.05	18.99	002.64	017.05	0573.1	04.41	03.71	14.5
27037	1	780617	051159	002.94	019.34	0585.8	03.28	02.95	14.2	001.38	004.71	0423.1	06.17	20.39	002.30	012.44	0553.2	03.32	02.99	15.2
27038	0	780330	056760	004.46	034.15	0326.9	04.31	03.97	22.5	001.18	003.33	0258.7	06.83	31.13	003.78	020.29	0318.8	04.53	04.19	24.4
27038	1	780627	058511	004.61	035.29	0290.4	04.38	04.37	24.6	001.25	003.11	0230.4	07.88	37.06	004.07	018.27	0278.0	05.87	05.16	27.7
27038	2	780915	061272	004.38	031.33	0316.7	05.11	04.73	23.3	001.26	003.21	0244.6	07.45	34.96	003.85	018.84	0300.3	05.27	04.80	25.9
27038	3	781213	062482	003.05	016.60	0346.9	04.97	04.10	23.2	000.86	002.49	0251.3	07.29	34.39	002.82	011.35	0337.2	04.96	04.06	24.3
27038	4	790313	063654	002.69	016.55	0333.5	04.55	03.78	24.1	000.93	002.69	0245.8	07.10	35.06	002.80	012.65	0327.7	04.65	03.85	24.8
27039	0	780330	078090	001.68	035.29	0728.0	03.18	02.84	11.2	000.86	005.63	0501.2	05.69	17.29	001.76	032.76	0680.1	03.07	02.78	12.0
27039	1	780628	079465	002.16	040.87	0729.9	03.05	03.30	11.1	001.32	007.33	0503.6	06.03	17.11	001.69	036.37	0675.8	02.85	02.83	12.3
27039	2	780919	080331	001.95	041.19	0774.2	03.52	03.15	10.5	000.86	007.14	0532.6	06.75	16.23	001.38	036.58	0720.0	03.60	03.25	11.3
27039	3	781208	080882	001.39	033.85	0733.9	03.39	02.76	11.2	000.64	005.43	0496.4	06.07	17.49	001.01	029.08	0698.2	03.00	02.43	11.8
27039	4	790312	081347	001.27	021.35	0905.5	04.16	03.66	09.4	000.60	005.34	0479.5	05.30	18.11	001.33	032.65	0664.9	02.60	02.32	12.3
27040	0	780411	054974	002.26	010.20	0356.5	02.60	02.32	23.7	000.43	003.65	0274.5	02.29	31.49	002.43	009.70	0306.3	02.21	01.97	26.9
27040	1	780630	055755	002.24	013.87	0312.2	02.05	02.32	25.0	000.49	003.93	0269.5	02.01	31.99	002.61	009.28	0292.1	01.97	01.83	28.1
27040	2	780929	056614	002.44	014.68	0320.1	02.58	02.42	25.3	000.72	003.72	0266.8	02.94	32.26	002.73	014.19	0289.4	02.51	02.37	27.6
27040	3	781220	057823	002.12	013.94	0282.0	02.65	02.18	28.5	000.80	003.59	0246.3	03.05	34.85	002.36	012.20	0264.2	02.37	01.95	30.4
27040	4	790321	061234	002.46	013.63	0285.8	03.05	02.57	28.1	001.27	003.48	0248.7	04.16	34.35	002.60	014.99	0267.6	02.91	02.45	29.6
27041	0	780509	112358	001.69	027.73	0644.5	03.69	03.55	12.8	000.79	006.64	0454.5	05.98	18.97	001.49	023.52	0614.5	03.70	03.49	13.5
37001	0	771008	049953	001.40	031.56	0490.9	02.35	02.25	16.3	000.30	004.21	0375.2	03.29	23.17	001.28	024.89	0460.2	02.14	02.08	17.6
37001	1	780403	051887	001.54	025.56	0484.0	03.18	02.75	15.8	000.30	003.40	0402.6	04.88	21.69	001.34	018.43	0443.8	02.76	02.17	18.5
37001	2	780706	052898	001.58	024.26	0476.5	02.63	02.43	17.0	000.45	004.29	0354.0	04.24	24.48	001.47	019.42	0455.4	02.60	02.41	18.0
37001	3	780922	053793	001.47	023.77	0492.1	02.60	02.39	15.6	000.42	004.40	0377.2	03.08	23.01	001.45	018.80	0472.2	02.58	02.36	17.5
37001	4	781220	054856	001.32	018.37	0513.2	02.66	02.22	16.2	000.31	003.06	0372.2	04.17	23.46	001.13	013.87	0494.3	02.19	02.03	17.0
37002	0	771109	113031	002.14	022.05	0432.5	08.91	07.51	18.7	001.20	004.90	0359.8	10.07	23.39	001.96	011.91	0399.4	08.35	07.05	20.9
37003	0	771207	075623	003.48	064.03	0604.1	05.34	04.43	12.4	001.91	011.88	0500.8	10.29	16.87	002.81	050.84	0585.0	06.29	05.20	13.1
37004	0	771207	063800	003.67	053.71	0435.5	05.54	04.57	15.7	001.20	010.59	0355.4	08.41	23.59	003.30	048.78	0403.6	04.57	03.76	18.0
37004	1	780619	067988	001.82	012.96	0489.5	05.59	05.55	17.2	001.40	011.17	0369.0	08.65	22.68	001.67	011.08	0451.8	04.89	04.57	18.5
37004	2	780727	070834	002.01	012.41	0468.5	05.32	04.99	17.9	001.29	009.35	0327.7	07.86	25.59	001.75	011.58	0442.0	04.51	04.36	19.0
37004	3	781020	073580	002.47	020.02	0482.7	04.64	04.22	17.0	001.69	020.05	0362.4	06.52	22.21	001.83	018.22	0452.9	03.87	03.58	18.2
37004	4	790122	076151	002.11	018.57	0486.7	05.61	04.64	17.0	001.49	018.04	0347.7	07.63	23.29	001.81	020.45	0459.8	04.53	03.81	17.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

EPA NO	SEQ	DATE	ODOM	FTP						HFET					HS FTP					
				HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
37005	0	780111	064104	007.11	047.19	0293.6	02.57	02.20	22.7	001.33	008.72	0221.0	04.00	37.12	005.55	040.56	0289.2	02.57	02.21	23.9
37006	0	771229	041388	002.29	021.17	0664.0	03.00	02.48	12.6	000.85	006.67	0455.9	03.22	18.91	001.88	015.25	0599.2	02.66	02.22	14.0
37006	1	780427	044952	002.36	023.09	0659.8	03.16	02.86	12.6	001.31	007.23	0463.9	03.61	18.53	001.77	014.76	0608.7	03.00	02.70	13.7
37006	2	780727	046697	002.02	018.15	0651.6	02.75	02.57	12.9	000.72	006.85	0439.9	02.95	19.58	001.54	013.75	0596.5	02.56	02.47	14.2
37006	3	781018	048121	002.24	017.40	0666.0	03.13	02.87	12.7	001.17	006.25	0485.3	04.09	17.78	002.05	012.32	0639.6	03.17	02.97	13.3
37006	4	790115	049823	002.39	017.88	0635.4	03.14	02.61	13.2	001.09	005.43	0439.5	03.66	19.64	001.88	012.88	0581.5	02.99	02.49	14.5
37007	0	780104	054244	004.20	087.57	0574.9	02.92	02.54	12.2	001.86	019.19	0410.3	05.79	19.87	003.11	061.23	0514.4	03.30	02.87	14.2
37007	1	780501	059956	003.43	062.04	0606.4	03.06	03.30	12.4	001.62	016.48	0436.4	06.73	18.97	002.19	031.62	0604.9	04.43	03.35	13.4
37007	2	780725	061440	001.76	068.26	0573.2	02.43	02.70	12.9	001.29	009.64	0425.5	05.41	19.94	002.35	038.09	0551.9	02.96	03.39	14.3
37007	3	781016	063974	004.05	066.91	0560.8	03.42	03.13	13.1	002.70	031.74	0425.1	05.50	18.34	002.91	047.53	0550.6	04.16	03.78	13.9
37007	4	790115	065346	004.71	096.52	0495.0	02.27	01.85	13.4	002.32	044.94	0371.5	04.48	19.65	003.21	053.70	0501.2	03.63	02.98	14.8
37008	0	780110	032843	004.78	084.55	0570.4	19.23	16.63	12.3	001.91	015.46	0437.6	06.22	18.95	003.94	075.34	0546.7	04.65	04.02	13.0
37008	1	780502	037475	004.30	080.39	0565.6	05.06	04.58	12.5	001.77	015.47	0436.8	06.04	19.00	003.82	066.33	0546.4	05.20	04.67	13.3
37008	2	780726	040536	004.37	072.18	0559.3	03.79	03.83	12.9	001.63	014.39	0421.6	05.26	19.73	003.72	070.97	0532.2	03.82	03.89	13.5
37008	3	781020	042357	020.15	030.87	0800.8	07.65	07.30	10.7	014.83	007.21	0521.7	08.19	15.29	020.34	028.56	0783.7	08.08	07.35	10.9
37008	4	790119	044568	004.12	072.60	0607.3	03.96	03.36	12.1	001.65	016.91	0446.7	05.09	18.53	003.56	068.81	0579.2	03.90	03.37	12.6
37009	0	780114	071290	003.45	015.84	0324.8	03.35	02.87	24.6	001.26	003.53	0252.4	05.49	33.86	002.80	012.61	0309.9	03.22	02.77	26.1
37010	0	780125	079775	003.21	059.11	0636.8	06.48	05.40	12.0	001.20	009.86	0464.4	07.63	18.33	002.72	037.26	0614.4	08.82	07.39	13.0
37010	1	780516	090825	003.35	045.34	0722.6	08.52	07.51	11.3	001.78	012.43	0542.9	10.71	15.61	003.20	040.12	0721.0	10.26	09.11	11.1
37010	2	780803	095353	003.10	037.85	0705.8	06.49	06.29	11.4	001.29	011.14	0481.2	07.60	17.64	002.62	035.13	0648.7	06.95	06.85	12.4
37010	3	781020	099782	004.28	045.47	0734.1	08.12	07.55	13.8	001.98	015.54	0536.5	09.06	15.64	003.31	039.95	0704.9	08.73	08.26	11.4
37011	0	780127	049385	002.50	020.83	0333.9	02.49	02.13	23.7	000.84	005.07	0265.8	04.62	32.08	002.03	016.25	0333.2	02.78	02.41	24.2
37011	1	780621	056022	003.31	036.54	0334.9	02.82	02.56	22.0	000.97	008.62	0278.6	04.76	30.03	002.99	036.84	0329.6	02.54	02.48	22.3
37011	2	780921	063169	003.40	036.93	0349.2	03.20	02.37	21.2	001.07	008.13	0251.7	03.28	33.11	002.63	030.22	0341.0	02.83	02.54	22.3
37011	3	781213	068362	003.71	038.53	0302.7	02.56	02.06	23.6	000.95	006.75	0230.5	03.83	36.33	003.12	034.29	0292.0	02.27	01.85	24.9
37011	4	790313	070153	003.68	036.77	0306.9	02.43	02.07	23.6	000.93	007.89	0236.1	03.60	35.27	003.00	033.10	0301.9	02.09	01.76	24.4
37012	0	780131	068861	006.02	094.98	0305.8	02.68	02.41	18.7	003.01	035.81	0256.3	03.57	27.53	004.89	083.54	0304.4	02.96	02.56	19.6
37012	1	780926	075302	002.59	070.51	0384.0	03.23	03.25	17.5	001.40	027.96	0312.1	04.66	24.60	002.17	058.55	0371.0	03.25	03.27	18.8
37012	2	781218	078442	002.75	074.78	0366.2	03.32	02.87	18.0	001.43	027.33	0291.3	04.56	26.17	002.50	057.46	0357.8	03.62	03.13	19.4
37012	3	790320	080798	002.64	066.43	0320.7	02.19	01.95	20.5	001.51	024.53	0282.4	04.47	27.23	002.29	055.60	0309.6	02.22	01.94	21.9
37013	0	780202	037371	002.15	039.71	0347.5	02.71	02.43	21.3	000.60	007.27	0247.7	03.84	33.97	001.71	029.50	0338.8	02.72	02.44	22.7
37014	0	780201	048956	003.02	056.44	0332.7	05.32	04.63	20.6	001.33	030.18	0296.7	06.38	25.46	003.29	049.81	0303.0	04.62	04.05	22.6
37014	1	780629	052969	002.82	059.50	0331.9	04.52	04.48	23.4	001.37	031.80	0294.8	05.96	25.40	002.60	053.07	0307.4	03.98	03.97	22.2
37014	2	780920	054744	003.16	062.27	0341.3	04.55	04.12	19.7	001.33	030.08	0304.4	06.51	24.92	002.89	059.66	0316.9	04.41	03.99	21.1
37014	3	781213	057143	002.61	061.11	0344.6	04.59	03.79	19.8	001.21	029.80	0292.2	06.34	25.87	002.36	048.83	0322.9	04.51	03.85	21.7
37014	4	790316	059243	002.77	060.15	0309.8	03.50	03.14	21.5	001.34	029.36	0276.6	05.27	27.12	002.70	051.49	0292.0	03.25	02.90	23.2
37015	0	780210	045034	002.58	064.25	0531.8	04.68	03.88	13.8	001.65	027.03	0397.3	05.92	19.93	002.11	051.47	0534.6	04.30	03.62	14.2
37015	1	780522	053375	002.49	068.02	0512.0	04.37	03.83	14.1	001.32	022.24	0380.4	06.02	21.14	001.95	054.13	0489.0	04.22	03.81	15.2
37015	2	780814	056454	002.96	099.54	0513.0	03.37	03.26	13.1	001.51	031.22	0381.4	04.95	20.38	002.38	069.74	0495.7	03.29	03.17	14.6
37015	3	781106	060775	003.11	109.66	0485.2	02.63	02.23	13.3	001.60	035.81	0369.5	04.40	20.58	002.47	077.59	0471.5	03.34	02.85	14.7
37016	0	780221	068289	005.44	054.40	0596.6	04.62	04.02	12.7	002.30	011.27	0453.8	06.37	18.56	005.21	037.48	0565.0	04.17	03.63	13.8
37016	1	780523	072568	005.84	050.21	0515.2	04.96	04.22	14.3	003.38	014.58	0433.5	08.54	19.02	005.40	036.87	0504.7	04.49	03.79	15.3
37016	2	780828	076383	006.52	054.25	0549.0	04.11	03.96	13.5	002.75	015.37	0422.6	06.06	19.47	006.00	038.99	0537.8	03.87	03.70	14.3
37017	0	780222	018476	002.81	032.04	0616.7	03.00	02.64	13.1	001.52	013.03	0479.6	04.08	17.56	002.19	022.88	0574.0	02.76	02.42	14.3
37017	1	780530	019231	002.60	028.06	0611.9	03.10	02.70	13.4	001.36	011.53	0477.6	04.03	17.74	002.23	021.49	0581.1	03.00	02.51	14.2
37017	2	780816	020407	002.73	033.74	0617.7	02.61	02.45	13.1	001.55	013.86	0483.6	03.61	17.38	002.47	027.26	0592.6	02.46	02.27	13.7
37017	3	781107	021316	002.27	028.60	0624.4	02.23	01.93	13.0	001.10	011.31	0504.8	03.15	16.86	001.77	020.75	0587.5	02.15	01.86	14.1
37017	4	790213	022486	002.61	038.00	0589.6	02.45	02.19	13.5	001.39	015.76	0472.0	03.33	17.69	002.47	036.04	0550.7	02.27	02.04	14.4
37018	0	780227	[illegible]	003.47	053.37	0637.4	07.86	07.49	12.1	001.22	007.60	0498.3	09.92	17.25	002.95	035.47	0622.0	07.71	07.52	12.9
37018	1	780524	046519	002.74	045.00	0670.0	09.65	08.51	11.3	001.24	006.69	0526.0	11.70	16.41	002.46	034.88	0656.0	08.28	07.25	12.1
37018	2	780809	048372	002.63	042.68	0676.9	06.92	06.97	11.8	001.23	007.21	0521.8	08.16	16.51	002.28	035.06	0647.2	06.77	06.69	12.5
37018	3	781027	050219	003.10	045.81	0713.3	08.86	07.74	11.2	001.34	007.42	0585.0	12.41	14.76	002.70	036.52	0695.6	09.69	08.56	11.5
37018	4	790126	052917	002.39	038.77	0675.2	07.58	06.28	11.9	001.06	006.11	0507.2	08.24	17.05	002.31	036.50	0622.8	06.93	05.77	12.9
37019	0	780301	028730	001.84	041.21	0665.9	03.24	03.13	12.0	000.43	008.07	0492.7	04.24	17.50	001.50	033.58	0618.1	03.30	03.25	12.7
37019	1	780630	031495	002.02	049.72	0792.3	03.54	03.35	11.1	000.33	008.51	0531.0	03.48	16.26	001.68	038.25	0679.9	03.31	03.73	11.9
37020	0	780308	035942	002.56	044.68	0365.9	02.92	02.63	19.8	001.61	020.85	0295.8	03.89	26.58	003.21	039.50	0343.7	03.09	02.77	21.3
37021	0	780308	053986	005.10	050.24	0414.6	02.03	01.81	17.4	001.46	013.79	0234.8	02.88	33.96	004.77	048.03	0381.9	01.95	01.73	18.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
37022	0	780308	071850	004.38	080.29	0308.4	02.64	02.40	19.8	001.80	032.28	0252.4	04.30	28.71	003.56	073.09	0304.4	02.71	02.44	20.6
37022	1	780621	076690	004.08	074.11	0305.8	02.48	02.44	23.4	002.08	031.06	0238.0	04.05	30.22	003.86	066.18	0307.9	02.76	02.81	20.9
37022	2	780913	080623	004.84	073.52	0313.2	02.65	02.55	20.0	002.13	026.32	0250.6	04.69	29.68	004.08	063.75	0310.5	02.88	02.80	20.9
37022	3	781207	082793	004.21	066.48	0293.8	02.57	02.12	21.5	002.16	026.13	0242.2	04.78	30.57	003.55	052.61	0286.9	02.82	02.32	23.2
37022	4	790312	086055	004.90	068.74	0294.3	02.54	02.27	21.2	002.40	029.71	0240.9	04.31	30.04	004.50	058.97	0297.9	02.79	02.50	21.9
37023	0	780318	046077	002.87	013.93	0645.4	02.57	02.25	13.1	000.87	004.25	0467.4	03.68	18.60	002.04	011.66	0646.3	02.48	02.13	13.2
37023	1	780612	048350	002.86	015.22	0621.1	02.13	02.31	13.6	001.13	005.33	0437.9	03.00	19.73	002.66	020.33	0711.0	02.53	02.53	11.8
37023	2	780905	051121	002.23	025.52	0700.8	01.84	01.72	11.9	000.73	005.18	0500.8	02.76	17.35	001.87	026.25	0661.4	01.61	01.51	12.5
37023	3	781201	053369	001.79	022.50	0656.5	01.43	01.25	12.7	000.52	004.29	0477.3	01.90	18.26	001.35	026.10	0623.0	01.29	01.13	13.2
37023	4	790307	055784	002.30	023.09	0679.0	02.06	01.78	12.3	000.69	004.82	0467.1	02.62	18.60	001.76	029.47	0637.6	01.60	01.46	12.8
37024	0	780314	046735	006.04	066.69	0674.3	07.52	06.34	11.1	001.37	008.52	0524.0	06.60	16.37	003.40	048.32	0656.9	07.39	06.28	11.9
37024	1	780609	048024	004.75	056.32	0673.4	06.32	05.75	11.4	001.44	009.61	0528.3	05.52	16.18	003.43	045.36	0650.7	06.03	05.55	12.1
37024	2	780829	049404	002.60	041.56	0665.1	04.70	04.62	11.9	001.12	008.76	0499.5	03.86	17.16	002.95	034.12	0639.0	04.75	04.69	12.6
37024	3	781122	052659	002.93	039.44	0691.3	05.89	04.81	11.6	000.96	006.93	0532.8	04.34	16.22	003.28	033.04	0662.7	06.16	05.06	12.2
37024	4	790223	054879	003.10	035.39	0671.7	05.67	04.96	12.3	001.29	009.26	0499.4	03.47	17.12	003.77	042.38	0620.0	04.79	04.15	12.6
37025	0	780316	034354	003.16	045.94	0633.5	03.72	03.15	11.6	001.08	006.25	0492.0	04.95	17.55	003.10	037.12	0656.0	03.86	03.28	12.2
37025	1	780607	035881	003.34	049.80	0630.6	03.38	03.18	12.1	001.22	007.12	0439.3	04.57	19.52	003.36	043.88	0623.1	03.50	03.26	12.6
37025	2	780828	037681	003.71	052.29	0655.4	03.28	03.18	11.8	001.30	007.84	0482.5	04.80	17.77	004.07	048.47	0614.5	03.27	03.16	12.6
37025	3	781116	039259	003.69	053.29	0606.4	06.12	05.36	12.6	001.26	007.22	0465.3	07.71	18.45	004.23	046.46	0570.9	06.31	05.53	13.4
37025	4	790220	040532	003.86	060.37	0596.6	04.85	04.07	12.6	001.23	007.96	0452.0	05.11	18.93	004.24	043.99	0578.9	04.41	03.71	13.4
37026	0	780317	036637	001.45	038.71	0775.1	02.61	02.34	10.5	000.40	007.23	0513.1	03.39	16.87	001.13	037.81	0719.3	02.29	01.99	11.3
37026	1	780608	037913	001.48	043.85	0735.2	02.60	02.44	11.0	000.48	008.23	0506.2	03.48	17.03	001.24	040.56	0666.0	02.28	02.25	12.3
37026	2	780831	039765	001.59	050.08	0755.6	02.15	02.09	10.6	000.45	008.77	0522.3	03.25	16.50	001.50	049.06	0676.7	01.96	01.92	11.6
37026	3	781213	041507	001.43	038.25	0731.9	02.66	02.19	11.1	000.45	005.42	0494.5	03.80	17.58	001.24	036.33	0647.7	02.17	01.80	12.5
37026	4	790315	042774	002.01	042.78	0758.2	02.35	02.15	10.7	000.34	007.96	0517.5	03.39	16.70	001.74	036.84	0690.0	02.21	01.97	11.7
37027	0	780320	039095	002.14	021.56	0688.7	02.83	02.38	12.2	000.84	005.40	0498.4	03.63	17.40	001.99	017.10	0636.4	02.86	02.41	13.2
37027	1	780609	040643	001.83	019.99	0662.2	02.70	02.31	12.7	000.66	004.90	0462.8	02.91	18.77	001.63	017.58	0600.0	02.10	02.27	14.3
37027	2	780831	042335	002.06	023.29	0704.9	02.66	02.63	11.9	000.80	005.02	0496.6	03.05	17.49	001.91	019.38	0636.4	02.53	02.45	13.1
37027	3	781127	043586	002.11	017.78	0653.2	02.61	02.18	12.9	000.80	004.45	0474.7	03.02	18.32	001.69	016.29	0610.9	02.59	02.16	13.8
37027	4	790302	044425	001.87	015.92	0657.5	02.39	02.02	12.9	000.68	004.18	0464.6	02.54	18.73	001.53	013.11	0591.9	02.14	01.82	14.3
37028	0	780322	082428	002.44	072.07	0744.8	05.16	04.53	10.2	000.81	012.44	0552.3	06.79	15.44	002.11	066.96	0705.6	04.59	04.01	10.8
37028	1	780605	085075	002.67	079.91	0708.1	03.59	03.55	10.3	000.30	014.59	0545.1	05.01	15.54	002.30	067.98	0682.4	03.21	03.35	11.1
37028	2	780906	088702	002.65	079.19	0729.2	04.20	03.93	10.3	000.85	018.18	0543.6	05.20	15.43	002.47	077.60	0685.7	03.56	03.32	10.8
37028	3	781130	092094	002.49	073.31	0702.9	03.25	02.73	10.7	000.71	018.12	0517.2	04.32	16.18	002.43	080.24	0663.1	02.47	02.33	11.0
37028	4	790302	094054	003.54	071.47	0674.1	03.89	03.26	11.1	000.77	012.06	0521.1	05.68	16.35	007.20	051.74	0641.3	04.45	03.79	11.9
37029	0	780323	038735	002.45	028.39	0768.9	02.86	02.55	11.6	001.52	005.88	0521.4	04.08	16.56	002.34	025.21	0681.0	03.20	02.86	12.1
37029	1	780613	040258	002.01	020.94	0704.0	02.72	02.53	11.7	001.18	005.65	0481.4	03.50	17.95	002.22	020.16	0660.2	02.89	02.57	12.6
37029	2	780905	042254	002.15	026.93	0706.5	02.64	02.51	11.7	001.38	006.24	0533.8	05.43	16.18	001.98	017.98	0724.6	03.77	03.57	11.6
37029	3	781204	043652	001.91	021.57	0724.4	02.27	02.03	11.6	000.90	005.57	0506.8	03.38	17.11	002.08	020.37	0658.6	02.23	01.98	12.7
37029	4	790307	044614	001.86	019.72	0706.1	02.29	02.08	11.9	000.99	004.86	0485.7	03.46	17.86	002.20	020.47	0627.2	02.36	02.15	13.3
37030	0	780324	076993	006.28	020.64	0745.4	07.63	06.76	11.1	007.11	007.69	0555.0	08.29	15.04	009.15	021.05	0694.9	06.46	05.86	11.7
37030	1	780617	080322	003.66	026.92	0738.3	05.29	04.94	11.2	001.52	014.34	0565.1	06.75	14.97	003.21	034.74	0695.7	04.37	04.51	11.5
37030	2	780908	084176	003.01	034.75	0744.6	04.89	04.42	11.0	001.49	019.64	0544.6	05.17	15.29	003.28	049.09	0699.0	03.64	03.30	11.2
37030	3	781204	086464	003.49	031.30	0758.5	04.63	04.27	10.8	001.83	013.22	0533.7	05.11	15.83	003.07	020.25	0714.6	04.66	04.20	11.7
37030	4	790312	087457	003.41	025.87	0735.1	04.80	04.15	11.2	001.42	012.49	0513.6	05.17	16.49	003.46	026.26	0696.2	04.03	03.49	11.8
37031	0	780328	027146	001.37	035.21	0780.8	03.02	02.70	10.6	000.55	009.00	0550.0	04.76	15.67	001.27	031.23	0691.4	02.89	02.57	11.9
37031	1	780614	030583	002.07	035.49	0700.4	02.77	02.32	11.6	000.78	009.92	0511.4	04.09	16.75	001.85	029.92	0645.3	02.76	02.51	12.7
37031	2	780907	033356	001.82	039.95	0666.6	03.11	02.88	12.1	000.66	011.66	0501.2	04.50	17.00	001.71	037.37	0636.7	03.15	02.94	12.6
37031	3	781204	035539	001.94	043.72	0649.7	02.68	02.43	12.2	000.63	009.90	0469.0	03.80	18.23	001.49	039.86	0613.6	02.47	02.22	13.3
37031	4	790308	038646	001.51	032.52	0654.3	02.94	02.51	12.5	000.55	009.66	0464.8	04.03	18.41	001.10	032.46	0599.8	02.58	02.30	13.5
37032	0	780329	090091	002.13	013.84	1047.1	02.67	02.37	08.2	000.27	002.23	0754.0	03.19	11.69	001.30	005.83	1004.4	02.67	02.36	08.7
37032	1	780627	095031	001.96	010.87	1020.7	02.31	02.24	08.5	000.17	002.89	0779.2	03.06	11.31	001.64	007.38	1002.3	02.36	02.17	08.7
37032	2	781122	102289	002.02	008.78	0880.8	03.33	02.73	09.8	000.29	002.49	0652.0	03.68	13.50	001.54	005.54	0839.4	03.95	03.27	10.4
37032	3	790226	107018	002.48	011.68	0917.1	02.32	02.08	09.4	000.56	002.64	0667.8	02.64	13.16	002.59	006.51	0835.4	02.43	02.17	10.3
37033	0	780403	074963	001.62	024.85	0432.5	01.98	01.72	18.6	000.34	005.70	0304.7	02.24	28.18	001.38	020.23	0403.5	01.54	01.43	20.1
37033	1	780629	076214	002.64	032.71	0414.8	02.22	02.17	18.7	000.47	007.83	0280.2	02.33	30.16	001.89	029.99	0404.1	02.02	01.96	19.3
37033	2	780927	080285	001.77	020.66	0470.1	02.48	02.35	17.5	000.48	006.74	0317.8	02.45	26.88	001.44	018.89	0438.4	02.07	01.95	18.7
37033	3	781218	081964	001.87	025.41	0453.0	02.33	02.32	17.8	000.53	008.02	0295.3	02.25	28.64	001.71	020.47	0434.3	02.14	01.86	18.7
37033	4	790319	084698	002.09	030.64	0432.7	02.09	01.83	18.2	000.73	010.50	0283.0	01.98	29.38	001.94	027.76	0406.4	01.80	01.57	19.4
37034	0	780404	048300	003.86	064.32	0671.7	05.46	04.75	11.3	001.46	009.31	0493.3	09.19	17.30	003.25	057.01	0646.4	05.48	04.72	11.8
37034	1	780628	051432	003.51	060.76	0639.1	04.58	04.74	11.9	001.55	010.89	0472.8	08.17	17.92	003.46	061.22	0606.6	04.35	04.72	12.4
37034	2	781012	055604	002.49	055.08	0661.4	04.66	04.21	11.7	001.17	007.76	0479.5	07.86	17.90	002.69	047.50	0637.9	04.75	04.28	12.3
37034	3	781228	058751	003.96	059.97	0649.6	05.01	04.36	11.7	001.46	009.01	0485.8	09.78	17.57	003.06	053.95	0634.4	05.39	04.41	12.1
37034	4	790329	062634	003.75	070.87	0661.0	04.95	04.25	11.3	001.53	011.43	0491.4	08.74	17.25	003.45	062.22	0631.3	05.18	04.55	11.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEW	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
37035	0	780407	061359	003.66	074.05	0596.0	04.47	03.94	12.2	002.03	023.97	0441.9	05.79	18.25	003.46	072.36	0542.9	03.59	03.23	13.2
37035	1	780710	064412	001.86	025.09	0621.9	03.27	03.11	13.3	001.14	007.84	0415.4	05.26	20.56	001.45	013.14	0594.3	03.24	03.11	14.3
37035	2	781004	068438	002.81	045.57	0668.1	04.95	04.50	11.8	001.68	015.75	0464.8	06.12	17.92	002.35	037.29	0636.7	04.24	03.84	12.6
37035	3	781221	070443	002.73	050.28	0634.3	04.11	03.57	12.3	001.37	010.75	0436.5	05.44	19.37	002.36	043.84	0599.7	03.55	03.15	13.1
37035	4	790327	072820	002.95	055.03	0651.0	04.17	03.73	11.9	001.69	017.20	0451.2	05.45	18.34	002.81	051.63	0599.0	03.96	03.55	12.8
37036	0	780414	039010	001.87	029.38	0706.2	06.22	05.59	11.7	000.78	004.96	0468.2	06.14	18.53	001.62	020.71	0674.8	06.21	05.59	12.4
37036	1	780710	039929	002.05	031.97	0691.3	06.29	05.74	11.9	000.90	004.99	0464.5	05.92	18.66	002.03	022.49	0664.9	05.98	05.55	12.5
37036	2	781002	041520	002.04	028.90	0692.8	05.97	05.43	11.9	000.86	004.44	0457.4	06.34	18.99	001.65	019.12	0663.9	06.09	05.58	12.6
37036	3	781219	042681	002.38	031.85	0670.4	07.94	06.55	12.2	001.06	004.63	0443.6	08.80	19.52	002.06	020.27	0645.0	08.37	07.00	12.9
37036	4	790329	044445	002.33	027.23	0653.6	07.06	06.09	12.6	000.87	004.21	0444.5	08.22	19.54	002.18	019.18	0632.6	07.58	06.67	13.2
37037	0	780413	057016	002.28	058.92	0662.2	02.91	02.68	11.6	000.85	010.81	0479.2	04.42	17.78	001.83	050.30	0624.1	02.63	02.44	12.5
37037	1	780706	060942	002.83	056.42	0617.8	02.52	02.45	12.4	000.84	007.46	0433.4	03.70	19.80	001.84	040.28	0577.2	02.16	02.34	13.7
37037	2	780926	063621	003.25	073.16	0666.0	05.18	05.11	11.2	001.15	012.12	0466.2	07.21	18.14	002.48	056.95	0634.1	05.25	05.25	12.1
37037	3	781218	067402	002.10	053.47	0679.2	02.21	01.85	11.5	000.83	006.96	0455.8	03.29	18.90	002.22	042.42	0648.5	02.40	02.01	12.2
37037	4	790320	070784	002.86	022.32	0731.8	02.42	02.15	11.4	000.97	005.20	0480.8	03.05	18.02	002.86	013.85	0685.0	02.42	02.14	12.3
37038	0	780808	067541	004.48	044.24	0428.0	02.30	02.49	17.3	001.65	017.17	0249.8	03.67	31.45	004.73	050.91	0391.6	02.04	02.22	18.2
37038	1	781030	072014	005.22	043.69	0472.4	02.15	01.89	15.9	001.32	012.06	0293.1	02.04	28.13	003.90	037.58	0438.3	01.79	01.76	17.4
37038	2	790207	082043	004.88	040.31	0435.3	01.80	01.59	17.2	002.56	019.05	0262.6	01.69	29.50	005.93	043.49	0398.8	01.67	01.47	18.2
37039	0	780913	057722	004.09	036.01	0337.7	02.97	02.81	21.8	001.15	011.15	0250.6	03.90	32.63	003.67	033.67	0323.9	02.58	02.49	22.8
37039	1	781207	059451	003.07	023.06	0316.0	02.83	02.35	24.5	000.99	006.30	0241.5	04.15	34.84	002.86	017.06	0305.6	02.55	02.12	25.3
37039	2	790309	061728	003.13	022.91	0304.3	03.10	02.54	25.3	001.06	006.78	0234.9	04.50	35.63	002.82	017.74	0297.6	02.00	02.33	26.5
37040	0	781010	041813	001.89	027.62	0437.6	05.51	05.02	18.2	001.24	012.23	0356.2	08.71	23.38	001.67	021.55	0404.9	04.92	04.48	19.9
37040	1	781222	044131	001.96	023.83	0417.6	05.15	04.42	19.2	001.17	011.38	0335.0	08.28	24.87	001.50	019.31	0389.2	04.77	04.07	20.3
37040	2	790326	046156	001.81	021.38	0437.9	05.93	05.15	18.6	001.13	008.38	0339.0	08.92	24.93	001.75	017.79	0399.7	05.31	04.64	20.4
47001	0	771104	024890	003.03	065.64	0387.6	02.60	02.66	17.7	000.92	012.47	0335.3	04.76	24.78	002.92	069.95	0357.9	02.53	02.65	18.5
47001	1	780407	025821	002.95	057.29	0389.8	03.43	02.78	19.1	000.80	011.01	0353.1	05.19	23.78	002.60	046.86	0360.8	03.23	02.77	20.3
47001	2	780707	027816	002.88	061.31	0381.3	03.30	03.23	18.2	000.76	010.03	0346.2	04.50	24.34	002.80	058.36	0361.5	03.14	03.07	19.1
47001	3	781018	029498	003.07	061.21	0411.3	02.80	02.57	17.1	000.64	008.60	0382.1	03.71	22.30	002.81	057.25	0368.7	02.43	02.22	18.7
47001	4	790123	032168	005.33	057.96	0365.8	04.26	03.59	18.6	000.97	012.45	0314.9	06.29	26.28	002.57	068.47	0330.8	03.71	03.12	19.8
47002	0	771116	050499	002.62	064.49	0416.5	05.00	04.29	16.9	001.20	011.00	0335.9	07.33	24.84	002.21	051.71	0404.2	05.05	04.29	18.0
47002	1	780413	054648	003.29	057.55	0416.3	07.92	07.15	17.1	001.23	011.76	0368.2	10.55	22.71	003.14	058.74	0377.4	06.74	06.14	18.6
47002	2	780821	057924	002.74	055.90	0369.5	06.66	07.35	19.0	000.98	009.77	0350.5	10.09	24.04	002.38	044.12	0342.0	06.02	06.81	21.1
47002	3	781215	061830	002.48	056.84	0400.2	08.50	07.18	17.8	000.82	011.72	0353.5	10.72	23.68	002.39	054.07	0364.9	07.01	05.91	19.3
47002	4	790319	064058	003.29	071.29	0398.6	07.22	06.27	17.3	001.02	019.68	0360.1	10.12	22.49	003.87	073.25	0350.2	05.75	05.01	18.5
47003	0	771116	045703	002.45	034.80	0430.5	08.26	07.26	18.0	001.12	004.20	0363.4	10.17	23.74	002.27	028.95	0401.3	07.70	06.79	19.5
47003	1	780414	049069	002.15	018.89	0441.0	07.47	06.89	18.6	001.36	003.04	0360.2	09.54	24.07	001.84	012.29	0416.3	07.09	06.55	20.0
47003	2	780728	053500	002.31	034.30	0376.5	05.23	05.09	20.3	000.99	004.17	0308.7	07.41	27.86	002.36	029.64	0351.7	04.89	04.76	21.8
47003	3	781025	056685	001.94	022.74	0462.2	08.21	06.96	17.6	000.99	003.86	0379.9	10.06	22.79	001.79	017.04	0427.4	07.77	06.57	19.2
47003	4	790118	059146	002.54	020.20	0444.6	08.05	06.56	18.3	001.05	004.18	0344.9	09.64	24.99	002.61	017.15	0413.4	07.41	06.04	19.7
47004	0	771116	018281	002.65	056.10	0415.6	05.61	04.68	17.3	001.22	008.02	0334.1	07.59	25.30	002.55	055.15	0395.7	05.23	04.60	18.0
47004	1	780417	020962	003.05	061.13	0456.7	06.21	05.58	15.8	001.36	010.72	0379.6	08.57	22.13	002.94	059.76	0423.5	05.51	05.32	16.8
47004	2	780714	022833	003.74	062.80	0414.2	05.16	05.16	16.9	001.36	010.35	0350.3	07.91	23.91	003.15	057.40	0398.4	04.89	04.93	17.7
47004	3	781013	024759	002.95	054.01	0472.3	05.94	05.16	15.7	001.02	006.37	0372.3	08.79	23.00	002.23	047.41	0435.9	05.45	04.68	17.1
47004	4	790108	026623	002.05	027.89	0430.5	06.29	05.01	18.4	000.93	004.22	0336.9	09.11	25.59	001.81	024.30	0410.6	05.70	04.55	19.5
47005	0	771121	034875	002.65	034.21	0634.5	03.16	02.63	12.7	001.36	005.62	0437.8	04.23	19.67	002.14	024.92	0599.8	02.75	02.34	13.7
47005	1	780508	035449	002.59	035.44	0649.3	02.87	02.52	12.4	001.49	006.28	0470.7	04.82	18.27	002.21	022.93	0632.8	03.07	02.79	13.1
47005	2	780731	036098	001.92	013.28	0653.3	02.56	02.34	13.0	001.28	003.42	0434.6	04.18	19.97	001.67	006.36	0619.0	02.59	02.36	13.9
47005	3	781026	037163	002.55	028.11	0668.0	03.77	03.16	12.3	001.53	005.45	0469.5	06.04	18.36	002.18	018.98	0635.4	03.84	03.23	13.1
47005	4	790129	037834	003.23	057.62	0595.2	02.35	01.89	12.7	001.52	007.45	0437.9	02.62	19.51	002.75	045.15	0595.0	02.57	02.07	13.1
47006	0	771228	023745	003.43	052.49	0579.1	02.32	01.90	13.2	001.58	008.09	0418.6	03.99	20.33	002.33	036.77	0557.5	02.47	02.03	14.2
47006	1	780502	026119	002.56	025.44	0572.1	02.67	02.39	14.3	001.58	006.05	0406.2	04.45	21.08	002.15	016.09	0545.4	02.56	02.33	15.3
47006	2	780802	027445	002.33	022.51	0534.2	02.13	02.03	15.4	001.48	005.41	0374.9	03.59	22.85	002.01	014.53	0508.8	02.13	02.03	16.4
47006	3	781020	028776	002.63	025.22	0616.6	02.94	02.58	13.3	001.53	005.44	0415.9	04.68	20.66	002.08	014.78	0547.7	02.71	02.32	15.3
47006	4	790117	031104	002.80	024.18	0567.8	02.66	02.16	14.4	001.58	005.05	0397.5	04.67	21.61	002.37	016.29	0536.7	02.88	02.34	15.5
47007	0	780105	072830	002.47	041.86	0307.2	02.81	02.57	23.2	001.52	012.82	0237.9	05.11	33.74	002.21	024.88	0307.8	02.66	02.42	25.0
47007	1	780501	075045	002.83	039.47	0331.2	03.24	02.85	22.3	001.36	014.54	0261.4	06.07	30.73	002.59	028.51	0324.1	03.30	02.83	23.5
47007	2	780727	077762	002.51	023.97	0320.7	02.81	02.60	24.2	001.25	008.00	0233.9	04.62	35.41	002.38	022.12	0311.8	02.57	02.38	25.0
47007	3	781019	079519	002.51	020.74	0332.2	03.58	03.22	23.8	001.33	007.75	0244.8	05.41	33.95	002.27	019.25	0313.8	03.08	02.83	25.2
47008	0	780124	027599	002.69	014.06	0569.3	05.73	04.79	14.8	000.78	002.89	0454.1	07.48	19.23	002.82	016.60	0548.7	05.45	04.58	15.1
47008	1	780509	030496	003.45	013.90	0573.3	05.94	05.32	14.5	001.30	003.84	0463.4	07.47	18.73	003.38	027.45	0535.3	05.13	04.61	15.3
47008	2	780823	034985	002.37	025.83	0566.2	04.56	04.33	14.4	000.89	003.58	0444.1	06.38	19.60	002.46	016.99	0549.0	04.58	04.35	15.2
47008	3	781121	037445	002.53	036.78	0547.2	03.60	02.90	14.5	000.97	004.05	0447.0	04.82	19.43	002.58	031.50	0522.8	03.48	02.79	15.7
47008	4	790301	040865	002.54	029.45	0541.2	02.43	02.35	14.9	000.67	003.59	0444.3	04.18	19.62	002.77	029.38	0513.4	02.89	02.44	15.6

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
47009	0	780203	036810	002.38	041.69	0419.1	02.18	02.02	18.0	000.63	011.14	0323.2	03.05	25.88	001.67	030.35	0386.7	01.72	01.61	20.1
47010	0	780208	030202	003.85	080.95	0398.8	01.44	01.33	16.5	002.40	041.96	0328.4	01.82	22.06	003.36	071.51	0374.1	01.19	01.11	17.8
47010	1	780525	031481	003.44	077.08	0400.5	01.58	01.41	15.7	002.27	042.09	0334.3	02.07	21.75	003.19	071.07	0368.4	01.21	01.07	18.3
47010	2	780816	032638	003.54	074.07	0385.6	01.39	01.30	17.1	002.27	041.42	0336.1	01.90	21.71	003.26	071.95	0368.6	01.17	01.10	18.0
47010	3	781107	034014	003.64	078.44	0405.1	01.79	01.54	15.4	002.35	041.67	0340.0	02.32	21.53	003.33	075.11	0380.0	01.45	01.25	17.4
47010	4	790209	035225	003.89	084.03	0415.3	01.81	01.56	15.8	002.21	045.14	0332.1	02.15	21.63	003.58	080.55	0387.5	03.07	02.81	16.8
47011	0	780208	049902	002.13	032.82	0381.1	05.69	04.92	20.2	001.05	004.40	0319.8	07.08	26.87	001.80	024.21	0352.8	05.25	04.51	22.3
47012	0	780216	058368	005.81	066.17	0386.1	04.03	03.39	17.4	001.66	016.11	0293.9	05.02	27.33	005.53	061.48	0370.7	03.78	03.20	18.2
47012	1	780530	060159	005.93	062.26	0372.6	03.68	03.15	18.1	001.87	016.43	0273.5	04.74	29.05	006.10	057.64	0354.1	03.56	03.14	19.1
47012	2	780915	064511	007.29	064.03	0397.1	02.83	02.60	17.0	002.72	017.18	0283.0	04.44	27.84	007.00	059.17	0363.7	02.97	02.63	18.5
47012	3	781211	067116	009.47	029.33	0435.8	03.39	03.19	17.3	001.17	005.34	0311.3	03.40	27.42	009.25	023.85	0408.0	03.41	03.16	18.6
47012	4	790327	069107	002.00	015.44	0448.0	02.65	02.35	18.5	000.46	003.25	0292.6	03.25	29.64	001.79	010.71	0430.6	02.65	02.35	19.5
47013	0	780211	058999	003.21	093.50	0450.6	02.23	02.05	14.6	001.81	046.48	0339.6	03.61	21.20	003.10	091.78	0425.5	02.45	02.26	15.3
47013	1	780519	062014	002.62	049.02	0487.4	03.75	03.45	15.5	001.71	030.99	0362.9	04.66	21.27	002.73	050.53	0457.8	03.29	03.32	16.2
47013	2	780808	065596	002.84	051.14	0476.4	03.42	03.66	15.7	001.85	034.94	0344.7	04.33	21.87	003.10	061.44	0447.4	02.53	02.76	16.0
47013	3	781027	068236	002.09	023.45	0492.6	04.20	03.59	15.5	001.25	016.07	0359.3	05.61	22.83	001.71	017.34	0478.8	04.31	03.76	17.3
47013	4	790131	071177	002.32	028.85	0483.9	04.98	04.00	16.5	001.47	023.14	0334.3	05.12	23.63	002.52	030.29	0443.3	04.13	03.36	17.7
47014	0	780228	062692	003.94	023.90	0440.3	01.97	01.87	18.1	000.60	005.85	0312.4	03.21	27.41	003.84	019.34	0415.3	02.19	02.09	19.3
47014	1	780711	067038	005.21	019.15	0441.8	02.11	01.74	18.2	000.81	006.35	0322.4	02.67	26.48	005.82	016.52	0392.5	01.54	01.53	20.3
47014	2	781009	070668	002.72	025.85	0403.1	03.08	03.03	19.6	000.71	009.41	0299.8	04.18	27.99	002.88	022.13	0384.0	03.11	03.10	20.7
47014	3	781228	074165	002.18	022.22	0537.5	01.87	01.53	15.3	000.31	003.74	0339.2	01.99	25.63	002.13	018.47	0510.5	01.82	01.50	16.2
47014	4	790316	076404	002.08	023.49	0497.7	01.30	01.15	16.4	000.18	004.27	0334.5	01.46	25.95	002.04	020.32	0467.3	01.23	01.08	17.5
47015	0	780301	033018	002.13	020.76	0777.2	07.46	06.46	10.9	001.02	012.04	0543.5	08.22	15.68	001.57	014.17	0741.8	07.05	05.99	11.5
47015	1	780605	035662	001.66	009.98	0747.1	04.11	04.32	11.5	000.99	006.20	0533.8	04.15	16.22	001.79	011.67	0690.2	04.04	03.95	12.6
47015	2	780824	041550	001.78	009.49	0791.9	04.41	04.59	10.9	001.08	005.70	0543.9	04.93	15.94	001.92	010.54	0737.2	04.36	04.44	11.6
47015	3	781115	043765	001.59	006.51	0749.9	05.41	04.35	11.6	000.90	003.76	0527.9	05.64	16.54	001.56	006.90	0711.0	05.18	04.15	12.2
47015	4	790227	047074	001.86	008.19	0782.0	05.62	04.99	11.1	000.83	004.57	0548.4	05.95	15.89	001.70	007.92	0726.2	05.44	04.88	11.9
47016	0	780309	046836	002.11	009.62	0868.6	04.18	03.54	10.0	000.74	003.81	0579.3	05.41	15.09	001.91	006.52	0818.6	04.18	03.51	10.6
47016	1	780607	049831	002.31	010.28	0818.8	03.77	03.56	10.5	000.94	004.43	0507.4	05.30	17.14	001.97	008.99	0785.3	03.71	03.65	11.3
47016	2	780830	052362	003.94	013.45	0845.4	02.95	03.18	10.1	001.10	006.72	0550.8	04.40	15.70	003.24	015.23	0809.4	02.75	02.95	10.5
47016	3	781122	052936	008.11	010.26	0809.8	04.18	03.46	10.4	001.55	003.67	0534.1	04.99	16.28	007.46	008.07	0768.7	04.04	03.36	11.0
47016	4	790305	053583	004.17	014.20	0826.7	05.00	04.71	10.3	001.13	004.00	0559.4	05.27	15.58	004.33	008.31	0804.3	03.62	03.40	10.6
47017	0	780308	029439	003.81	061.48	0635.9	05.55	05.10	11.9	001.00	010.55	0459.5	07.88	18.50	001.93	041.85	0596.7	06.11	05.58	13.2
47017	1	780606	030713	002.28	047.85	0622.1	02.35	02.15	12.6	000.77	006.80	0437.7	03.50	19.67	001.59	031.92	0589.9	02.39	02.21	13.7
47017	2	780824	032067	002.77	053.47	0614.7	02.14	02.16	12.5	000.95	008.56	0434.7	03.59	19.66	002.12	037.10	0592.9	02.42	02.44	13.4
47017	3	781113	033226	002.52	054.88	0667.4	02.18	01.76	11.6	000.74	006.59	0476.3	03.66	18.14	001.80	036.67	0637.5	02.40	01.95	12.6
47017	4	790220	034151	002.30	060.08	0645.0	04.22	03.51	11.9	000.53	008.58	0464.7	05.32	18.48	001.63	040.45	0607.7	04.54	03.80	13.1
47018	0	780322	050010	002.06	049.68	0612.9	03.13	02.75	12.7	000.95	029.74	0447.8	03.72	17.82	001.75	071.95	0585.9	02.04	01.79	12.5
47018	1	780615	052631	001.52	042.07	0700.2	02.18	01.97	11.5	000.49	009.39	0490.2	03.25	17.51	001.68	043.77	0653.8	01.21	01.71	12.1
47018	2	780912	055323	001.71	056.75	0716.9	02.94	02.76	10.9	000.57	017.78	0487.8	04.00	17.14	003.11	067.79	0649.5	01.55	01.45	11.5
47018	3	781206	057379	001.85	052.86	0684.0	03.89	03.27	11.5	000.65	014.99	0483.1	05.62	17.43	001.90	049.42	0647.3	04.03	03.60	12.1
47018	4	790315	059778	001.58	048.81	0627.6	02.67	02.49	12.5	000.61	016.38	0441.4	03.95	18.90	001.42	053.80	0594.6	02.35	02.20	12.3
47019	0	780314	057344	001.85	016.82	0431.3	04.20	03.54	19.1	001.07	015.65	0298.2	04.04	27.18	003.54	022.22	0396.6	04.97	04.16	20.0
47019	1	780613	059905	001.29	010.92	0406.0	03.73	03.35	20.3	000.58	004.82	0285.9	04.03	30.03	001.23	009.11	0372.1	03.32	03.37	22.7
47019	2	780906	064584	001.50	013.81	0416.4	03.49	03.23	20.0	000.67	006.79	0293.6	03.56	28.94	001.45	012.62	0391.8	03.01	02.79	21.3
47019	3	781205	070087	001.41	016.36	0398.3	03.17	02.58	20.7	000.57	006.81	0290.7	03.75	29.25	000.99	009.58	0382.6	03.39	02.85	22.1
47019	4	790308	075156	001.43	017.02	0390.1	03.24	02.73	21.0	000.56	006.99	0273.0	03.42	31.03	001.28	016.23	0365.1	02.91	02.46	22.4
47020	0	780316	061932	003.05	022.94	0306.4	02.60	02.14	25.2	000.73	003.55	0239.7	03.63	35.82	003.17	021.59	0292.8	02.33	01.92	26.3
47020	1	780629	066535	003.09	024.20	0309.1	02.30	02.23	24.8	000.79	003.97	0238.1	02.98	35.93	002.71	020.57	0295.4	02.02	02.03	26.3
47020	2	780928	070415	003.19	027.50	0316.1	02.73	02.55	24.0	000.73	003.73	0251.0	04.48	34.22	002.63	024.59	0309.0	02.59	02.45	24.9
47020	3	781219	071474	002.64	020.46	0305.6	02.59	02.11	25.6	000.66	003.20	0234.4	03.51	36.72	002.43	018.66	0299.1	02.36	01.93	26.3
47020	4	790321	072575	002.88	021.47	0310.5	03.08	02.53	25.1	000.79	003.13	0227.1	04.01	37.81	002.82	020.17	0315.2	03.25	02.77	24.9
47021	0	780324	029249	003.21	036.05	0519.9	03.36	03.07	15.1	001.92	005.64	0406.5	05.14	21.04	003.16	036.15	0474.7	02.52	02.26	16.3
47021	1	780609	030573	002.78	034.99	0489.7	06.12	05.84	15.3	001.31	005.68	0375.0	09.04	22.85	002.55	040.44	0453.8	05.58	05.23	16.3
47021	2	780901	033840	002.01	025.65	0555.5	03.85	03.72	14.7	000.57	003.75	0419.2	04.86	20.78	002.04	029.07	0516.3	03.51	03.40	15.6
47021	3	781129	035489	002.71	024.79	0507.1	04.20	03.59	15.0	000.71	004.18	0388.9	05.40	22.29	002.39	041.27	0450.4	03.50	03.08	16.9
47021	4	790302	036924	001.91	021.86	0503.0	05.03	04.23	16.3	000.51	002.98	0372.4	06.57	23.42	001.78	020.87	0464.6	05.08	04.23	17.6
47022	0	780322	068633	004.37	059.70	0285.2	02.35	02.12	22.6	001.06	008.41	0246.2	03.76	33.75	003.70	052.98	0277.4	02.24	02.01	23.8
47022	1	780612	072035	004.38	062.84	0279.8	02.05	01.90	22.5	000.95	009.22	0240.9	03.28	34.32	003.51	055.75	0279.7	01.37	01.34	23.6
47022	2	780901	076139	003.99	063.86	0280.8	02.26	02.18	22.5	001.38	013.07	0226.7	03.58	35.38	003.33	056.94	0277.1	02.13	02.20	23.5
47022	3	781130	078156	003.76	060.14	0289.1	02.30	02.09	22.4	000.79	007.90	0235.5	03.34	35.41	003.21	053.51	0279.3	02.13	01.95	23.7
47022	4	790305	079995	003.92	051.47	0290.4	01.82	01.75	23.1	000.93	010.99	0225.8	02.78	36.05	002.87	043.93	0279.1	01.57	01.50	24.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1972 - 74 EUGENE

				FTP						HFET					HS FTP					
EPA NU	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
47023	0	780327	022334	005.66	065.44	0278.3	01.79	01.53	22.2	001.11	011.39	0238.6	02.98	34.11	004.65	057.82	0268.2	01.77	01.61	23.7
47023	1	780615	023847	004.24	043.01	0291.2	02.28	02.11	23.8	001.11	009.27	0243.7	03.51	33.87	003.99	041.04	0279.4	02.22	02.07	24.9
47023	2	780911	024589	004.89	049.12	0315.5	02.47	02.35	21.7	001.18	008.77	0258.1	03.87	32.17	004.70	044.01	0298.2	02.14	02.05	23.2
47023	3	781207	025786	003.03	039.12	0290.0	02.33	01.89	24.6	000.79	006.34	0235.5	03.27	35.75	003.04	038.58	0277.9	02.11	01.72	25.4
47023	4	790314	027091	003.93	044.73	0282.5	02.17	01.91	24.3	000.96	007.47	0231.3	03.28	36.04	003.65	042.02	0267.8	01.90	01.71	25.6
47024	0	780327	022617	001.57	017.53	0918.7	02.95	02.67	09.3	000.89	003.71	0618.0	03.25	14.15	002.45	016.39	0969.2	03.63	03.30	08.8
47024	1	780712	024547	001.51	011.62	0835.7	02.24	02.13	13.3	000.91	003.69	0550.9	02.92	15.85	001.74	007.47	0778.8	02.23	02.09	11.1
47025	0	780329	056567	003.33	045.97	0330.8	02.39	02.12	21.4	001.58	021.40	0257.7	03.60	29.93	003.29	039.91	0306.6	02.31	02.05	23.3
47025	1	780623	059847	003.86	046.15	0327.8	02.42	02.29	21.5	001.66	021.38	0254.3	03.64	30.25	003.99	039.35	0314.6	02.49	02.30	22.7
47025	2	780918	060716	003.14	043.33	0349.0	02.68	02.37	23.8	001.60	019.07	0266.0	04.28	29.46	002.87	038.79	0345.0	02.38	02.09	21.3
47025	3	781208	062064	002.40	027.07	0367.1	03.16	02.62	21.3	001.45	011.23	0253.5	04.80	32.16	005.18	023.13	0320.2	03.18	02.50	23.7
47025	4	790308	063423	003.39	021.77	0338.9	02.84	02.51	23.1	001.30	008.80	0264.6	04.86	31.38	004.37	019.22	0308.8	02.70	02.42	25.1
47026	0	780329	060441	002.29	054.76	0778.2	02.44	02.18	10.2	000.68	009.21	0607.6	02.76	14.21	001.86	037.83	0757.1	02.68	02.40	10.7
47026	1	780614	062345	001.97	036.78	0850.1	02.62	02.44	09.7	000.42	007.52	0804.0	02.79	10.85	002.44	044.20	0678.4	02.38	02.22	11.7
47026	2	780906	064558	002.37	051.11	0741.3	02.28	02.12	10.7	000.74	010.80	0565.5	02.41	15.16	002.33	047.12	0700.2	02.25	02.12	11.3
47026	3	781201	067500	002.28	044.68	0737.9	01.76	01.57	10.9	000.56	013.31	0543.8	01.56	15.65	002.06	052.26	0667.9	01.47	01.30	11.7
47026	4	790307	070397	001.80	040.50	0718.0	01.80	01.50	11.3	000.57	010.19	0550.2	01.88	15.61	001.61	039.54	0654.8	01.75	01.55	12.2
47027	0	780330	045686	001.20	038.71	0803.9	02.02	01.81	10.2	000.39	006.52	0563.5	02.94	15.42	001.03	038.36	0746.1	01.87	01.68	10.9
47027	1	780620	047127	001.33	043.34	0763.2	03.39	03.13	13.6	000.39	009.44	0520.6	04.76	16.53	001.06	043.22	0720.4	03.23	02.99	11.2
47027	2	780911	046211	001.16	046.70	0791.4	03.66	03.46	10.2	000.38	008.27	0546.6	04.68	15.81	000.98	043.49	0737.9	03.57	03.43	10.9
47027	3	781207	050575	001.34	042.12	0746.3	02.46	02.02	10.9	000.34	007.57	0513.1	04.06	16.86	000.85	039.97	0702.1	02.72	02.24	11.5
47027	4	790306	052336	001.02	044.84	0754.9	03.09	02.95	13.7	000.32	008.86	0507.2	04.28	16.99	000.87	042.59	0688.5	02.91	02.82	11.6
47028	0	780403	052046	001.93	013.39	0325.1	04.21	03.60	25.2	000.89	002.26	0232.3	05.65	37.15	001.83	006.85	0325.1	04.25	03.67	25.9
47028	1	780616	054442	001.77	008.37	0298.5	03.85	03.42	23.0	000.87	001.83	0214.2	05.13	40.34	001.79	004.31	0292.8	03.56	03.16	29.3
47028	2	780911	056829	001.93	009.35	0306.0	02.94	02.76	27.1	000.92	002.05	0209.1	04.90	41.21	001.85	004.63	0294.4	02.73	02.56	28.8
47028	3	781205	061061	002.63	009.54	0287.5	04.65	03.90	28.5	000.99	002.15	0209.6	05.76	41.03	002.00	006.38	0274.7	04.27	03.59	30.4
47028	4	790315	063610	002.89	010.21	0286.1	02.77	02.57	28.5	000.94	001.65	0203.9	04.85	42.34	002.41	007.08	0272.9	02.92	02.67	30.4
47029	0	780406	044795	002.82	030.73	0458.1	01.46	01.32	17.2	000.85	006.75	0285.9	01.81	29.64	002.79	027.21	0416.8	01.42	01.29	18.9
47029	1	780710	047694	005.80	052.87	0437.0	01.23	01.10	15.5	001.79	011.77	0277.8	01.66	29.36	005.24	047.19	0425.2	01.22	01.10	17.1
47029	2	781003	050651	005.81	050.09	0415.4	01.20	01.14	17.3	001.78	010.89	0267.4	01.54	30.57	004.52	042.57	0396.6	01.19	01.10	18.5
47029	3	781222	052960	005.97	053.49	0438.0	01.41	01.22	15.4	001.21	013.50	0297.8	01.56	27.47	005.30	054.23	0405.0	01.31	01.14	17.4
47029	4	790322	054254	003.76	034.83	0409.8	02.32	01.97	18.6	000.80	008.40	0264.7	02.63	31.62	002.40	040.69	0368.5	02.01	01.71	20.1
47030	0	780411	062533	005.84	030.31	0588.1	06.11	05.27	13.6	001.65	004.88	0530.3	06.52	16.32	004.41	022.38	0574.3	05.29	04.56	14.2
47030	1	780706	065329	004.05	018.82	0626.6	06.57	05.38	13.3	001.79	005.48	0521.7	07.84	16.54	003.97	010.53	0590.0	06.52	06.55	14.3
47030	2	780925	068978	003.91	033.25	0640.2	07.47	07.39	12.6	001.64	007.54	0534.1	08.61	16.09	003.55	023.61	0616.5	06.95	06.91	13.3
47030	3	781215	071565	003.66	026.46	0691.1	08.03	06.76	11.9	001.30	005.29	0569.4	10.43	15.24	002.94	018.71	0664.3	08.38	06.98	12.6
47030	4	790321	075770	005.27	024.58	0651.5	07.74	06.49	12.5	001.58	007.60	0543.4	09.35	15.83	005.74	019.33	0604.3	06.98	05.90	13.5
47031	0	780414	044291	003.31	031.82	0648.2	06.13	05.43	12.5	001.54	004.95	0490.2	08.34	17.63	003.04	025.55	0623.3	05.53	04.95	13.1
47031	1	780706	046959	003.25	030.60	0655.8	05.47	05.42	12.4	001.74	006.59	0497.6	07.76	17.27	003.34	030.34	0608.7	04.65	04.62	13.3
47031	2	780926	048620	003.25	038.31	0656.7	05.36	05.39	12.2	001.63	006.31	0494.5	07.35	17.40	003.04	029.65	0618.5	04.81	04.94	13.1
47031	3	781215	051321	002.99	029.41	0648.5	05.68	04.73	12.6	001.38	004.98	0490.8	08.37	17.63	003.27	031.33	0619.4	05.50	04.71	13.0
47031	4	790319	053539	002.90	028.41	0606.7	05.10	04.50	13.4	001.40	006.32	0446.6	07.33	19.24	002.75	024.31	0581.3	04.87	04.30	14.1
47032	0	780620	041350	005.62	128.89	0367.2	01.76	01.69	15.1	002.21	062.95	0273.1	02.32	23.39	004.87	119.23	0351.8	01.66	01.59	15.9
47032	1	780925	043994	006.19	131.04	0384.0	01.47	01.45	14.5	002.43	068.90	0300.2	02.17	21.31	005.84	120.03	0375.4	01.40	01.39	15.2
47032	2	781214	045701	005.72	126.16	0336.0	01.33	01.10	16.1	002.34	065.45	0255.9	01.72	24.22	004.91	116.36	0324.8	01.25	01.04	16.9
47032	3	790314	047282	005.66	127.67	0342.3	01.29	01.17	15.8	002.47	068.83	0256.5	01.63	23.81	004.76	116.89	0322.3	01.15	01.04	17.0

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
58002	0	771011	025375	001.86	058.20	0634.6	02.36	02.17	12.1	000.19	006.45	0469.1	02.57	18.48	001.89	056.27	0595.3	02.15	01.98	12.8
58002	1	780331	028176	002.01	060.59	0649.3	02.45	02.23	11.8	000.27	006.42	0496.7	02.80	17.47	002.05	064.31	0609.4	02.38	02.13	12.3
58002	2	780627	028724	001.87	050.49	0651.7	01.86	01.73	12.0	000.25	005.47	0494.6	02.19	17.60	001.62	049.00	0617.2	01.87	01.77	12.6
58002	3	780915	029530	002.25	061.42	0645.6	02.09	01.96	11.8	000.39	009.99	0487.3	02.09	17.59	002.08	063.43	0595.0	02.01	01.88	12.6
58002	4	781212	030090	002.04	052.97	0633.5	02.20	01.85	12.3	000.24	005.66	0467.3	02.49	18.59	001.81	055.17	0593.2	02.26	01.89	12.9
58003	0	771020	039717	003.14	072.02	0422.5	02.94	02.71	16.3	000.56	007.47	0353.5	03.22	24.16	001.88	041.17	0419.8	03.16	02.88	18.0
58003	1	780425	045303	003.17	054.00	0451.5	02.85	02.55	15.2	000.48	006.63	0360.5	02.71	23.81	001.71	031.47	0425.9	02.71	02.56	18.6
58003	2	780713	047510	002.68	040.95	0425.1	03.09	03.10	17.7	000.48	003.22	0354.7	03.27	24.55	001.85	024.27	0413.1	03.11	03.14	19.4
58003	3	781005	050211	002.23	037.01	0439.3	03.70	03.33	17.6	000.28	002.32	0362.2	04.09	24.18	001.68	028.34	0418.1	03.72	03.34	18.9
58003	4	781226	052286	002.15	033.34	0425.7	03.26	02.72	13.3	000.36	003.04	0334.9	04.00	26.02	001.51	018.35	0413.8	03.32	02.77	19.8
58004	0	771026	020444	000.78	015.74	0442.9	01.82	01.68	18.9	000.31	002.49	0356.4	01.63	24.54	000.65	009.28	0422.6	01.75	01.62	20.1
58004	1	780410	023593	000.84	015.73	0446.6	02.40	02.13	18.7	000.36	002.84	0372.3	02.12	23.46	000.71	010.38	0433.5	02.23	01.98	19.6
58004	2	780726	025039	000.74	014.20	0435.9	01.66	01.69	19.3	000.39	002.66	0347.4	01.44	25.14	000.75	010.65	0403.8	01.48	01.59	20.9
58004	3	781023	026760	000.78	014.31	0454.6	02.18	01.87	18.5	000.35	002.63	0370.9	01.80	23.58	000.75	010.16	0429.3	02.08	01.80	19.8
58004	4	790119	028157	000.98	013.14	0449.8	01.59	01.35	18.7	000.29	002.49	0354.2	01.52	24.70	000.84	008.64	0421.2	01.71	01.46	20.2
58005	0	771102	015044	000.99	017.16	0476.4	03.24	02.78	17.5	000.08	000.45	0373.3	02.86	23.69	000.36	001.41	0464.8	03.63	03.14	18.9
58005	1	780412	018510	003.93	100.25	0413.9	02.99	02.51	15.2	000.62	010.49	0376.2	03.66	22.47	003.05	079.07	0403.2	03.17	02.75	16.5
58005	2	780711	020883	004.73	103.36	0395.4	02.67	02.46	15.5	001.13	013.63	0347.1	03.43	23.83	003.82	085.56	0382.2	02.84	02.60	16.7
58005	3	781003	022894	005.27	104.51	0395.7	02.68	02.50	15.4	001.20	015.53	0367.4	03.50	22.42	004.40	093.97	0376.4	02.62	02.44	16.4
58005	4	781222	024979	006.09	118.26	0406.5	02.43	02.14	14.5	001.07	014.73	0360.5	03.20	22.91	004.55	091.65	0414.6	02.97	02.62	15.4
58006	0	771103	020382	001.43	016.37	0424.7	05.03	04.69	19.5	000.62	002.64	0347.6	06.33	25.07	001.23	009.89	0405.8	04.50	04.27	20.8
58006	1	780414	022768	001.58	019.99	0441.2	04.99	04.49	18.6	000.56	003.06	0367.1	06.18	23.73	001.49	014.60	0429.2	04.97	04.65	19.4
58006	2	780814	025273	001.73	025.82	0411.8	04.54	04.30	19.4	000.63	003.21	0342.0	05.92	25.41	001.47	016.90	0387.3	04.45	04.20	21.1
58006	3	781102	027135	001.93	031.06	0431.6	06.31	05.40	18.2	000.70	003.02	0360.0	08.21	24.16	001.84	024.24	0410.3	06.17	05.30	19.5
58006	4	790206	029034	001.82	021.91	0423.7	05.57	05.08	19.1	000.72	003.06	0342.9	07.06	25.34	001.77	016.07	0391.9	05.49	04.97	20.9
58007	0	771205	027002	001.42	025.90	0588.4	04.11	03.90	14.0	000.31	007.57	0530.7	03.87	16.32	001.30	017.94	0557.1	04.11	03.47	15.0
58007	1	780419	030518	001.56	029.34	0545.5	03.50	03.36	14.7	000.39	008.75	0495.2	02.98	17.38	001.31	025.62	0521.5	03.16	03.23	15.6
58007	2	780717	032876	001.31	023.60	0552.4	03.23	03.32	14.9	000.33	009.88	0476.8	02.77	17.97	001.23	026.64	0513.4	02.58	02.40	15.8
58007	3	781009	035427	001.36	024.29	0565.0	03.21	03.05	14.6	000.25	007.85	0502.7	02.51	17.19	001.21	027.11	0526.0	02.62	02.52	15.4
58007	4	781228	037475	001.30	025.11	0532.2	04.41	03.59	15.4	000.35	008.62	0450.5	03.79	19.06	001.18	026.68	0488.3	03.76	03.06	16.6
58008	0	771128	013912	001.30	016.51	0585.5	05.54	04.98	14.4	000.50	003.17	0478.9	06.87	18.27	001.08	011.82	0560.5	04.96	04.53	15.2
58008	1	780421	016555	001.63	017.54	0557.5	06.95	06.57	15.0	000.62	003.68	0481.6	07.78	18.12	001.45	013.21	0519.3	06.19	06.02	16.2
58008	2	780718	018876	000.96	015.91	0591.3	04.26	04.02	14.3	000.20	002.81	0510.2	04.18	17.21	000.87	010.94	0558.0	03.89	03.75	15.3
58008	3	781011	020470	001.53	008.15	0588.9	05.57	05.04	14.6	000.48	003.14	0481.1	06.44	18.19	001.15	004.49	0557.5	05.10	04.59	15.6
58008	4	790116	022206	001.29	004.70	0557.6	04.43	03.71	15.6	000.41	002.40	0431.4	06.09	20.32	001.23	003.26	0542.4	05.38	04.45	16.0
58009	0	771206	018047	000.66	006.75	0474.0	03.08	02.58	18.2	000.09	000.52	0331.9	02.49	26.63	000.39	000.80	0438.9	02.67	02.27	20.0
58010	0	771208	029079	001.37	021.16	C498.8	01.99	01.66	16.5	000.22	003.50	0347.4	02.19	25.08	001.42	017.84	0475.9	01.82	01.51	17.4
58010	1	780421	033310	002.16	027.92	0492.5	01.61	01.54	15.3	000.25	004.47	0341.5	01.89	25.39	002.29	026.83	0459.0	01.68	01.46	17.4
58010	2	780724	037717	004.28	068.88	0422.2	01.45	01.44	16.3	000.55	011.85	0320.5	01.36	26.02	004.13	070.01	0396.4	01.15	01.15	17.0
58010	3	781018	039187	003.40	062.93	0443.9	01.54	01.41	15.0	000.50	012.38	0330.0	01.44	25.26	003.28	059.73	0425.7	01.61	01.31	16.7
58010	4	790115	041048	002.58	031.15	0486.7	01.67	01.36	16.3	000.30	004.79	0325.0	01.75	26.59	002.44	030.11	0468.1	01.48	01.21	16.9
58011	0	771209	025505	009.42	242.07	0392.7	00.51	00.43	11.0	006.09	229.91	0261.9	00.49	13.80	007.19	209.70	0360.3	00.41	00.35	12.4
58011	1	780418	027984	011.05	282.00	0372.4	00.37	00.35	10.4	008.15	265.75	0284.0	00.50	12.19	008.83	256.33	0354.7	00.35	00.31	11.2
58011	2	780714	030506	008.60	243.09	0416.5	00.49	00.48	10.7	007.31	251.22	0287.3	00.55	12.57	007.64	230.13	0389.2	00.42	00.43	11.4
58011	3	781005	032141	008.13	229.11	0416.3	00.51	00.46	11.1	006.42	242.56	0291.8	00.56	12.79	006.90	221.56	0396.1	00.43	00.40	11.5
58011	4	781226	033581	007.88	214.60	0436.2	00.53	00.44	11.1	007.46	230.61	0282.0	00.57	13.28	006.72	191.72	0417.5	00.48	00.40	11.3
58012	0	771212	034930	001.52	004.87	0651.8	05.73	05.23	13.4	000.66	002.84	0506.0	06.47	17.30	001.11	001.97	0621.0	04.12	03.65	14.1
58012	1	780420	038498	001.30	005.41	0659.4	05.48	05.20	13.2	000.72	003.86	0532.3	07.06	16.40	001.01	002.47	0639.7	05.41	05.16	13.7
58012	2	780720	041804	001.25	009.11	0664.0	04.36	04.53	13.0	000.52	002.60	0499.1	05.89	17.57	000.98	002.38	0632.6	04.44	04.70	13.8
58012	3	781012	044993	001.32	008.43	0676.7	02.98	02.64	12.8	000.60	003.34	0563.1	08.56	15.55	000.89	002.41	0630.8	05.41	04.79	13.9
58012	4	790115	047758	001.36	015.72	0630.5	03.98	03.34	13.4	000.44	002.03	0469.5	05.91	18.71	000.84	001.92	0608.2	04.61	03.89	14.4
58013	0	771221	035398	002.40	042.80	0436.4	04.01	03.26	17.3	000.83	013.69	0343.1	04.03	24.15	002.05	040.90	0404.3	03.35	02.72	18.6
58014	0	771216	030666	001.50	009.17	0722.5	04.82	04.71	12.0	000.57	003.47	0527.8	05.92	16.57	001.35	004.32	0692.3	05.31	04.39	12.6
58014	1	780420	032537	001.57	012.14	0745.0	04.88	04.54	11.5	000.68	003.69	0566.5	06.51	15.44	001.27	007.10	0695.2	04.55	04.23	12.4
58014	2	780718	034299	001.30	009.30	0724.6	04.66	04.38	11.9	000.68	003.00	0547.7	05.93	15.99	001.23	005.30	0698.7	04.51	04.29	12.4
58014	3	781011	035553	001.46	010.63	0767.6	05.06	04.71	11.2	000.52	003.79	0565.0	00.52	15.49	001.09	006.36	0710.4	04.58	04.36	12.2
58014	4	781226	037382	001.76	015.54	0705.7	04.67	03.93	12.1	000.51	003.18	0526.0	06.02	16.65	001.14	005.49	0666.0	04.65	03.84	13.0
58015	0	771222	032208	001.46	010.19	0354.7	03.29	02.69	23.6	000.80	003.46	0227.6	03.75	37.65	001.25	007.12	0337.3	03.29	02.71	25.1
58015	1	780427	034148	001.30	008.35	0370.8	03.35	03.13	22.9	000.75	002.51	0236.6	04.14	36.50	000.99	004.65	0357.4	03.28	03.07	24.1
58015	2	780713	036323	000.90	005.06	0341.8	03.39	03.59	25.1	000.59	001.86	0216.0	03.62	40.16	000.76	002.82	0328.9	03.14	03.49	26.4
58015	3	781011	037458	001.21	010.22	0349.6	03.37	03.14	24.0	000.65	003.78	0226.7	03.68	37.78	001.05	008.49	0331.9	03.37	03.07	25.4
58015	4	790115	041566	001.20	010.26	0345.0	03.46	02.81	24.3	000.62	002.57	0219.2	03.67	39.38	001.01	007.12	0335.2	03.49	02.85	25.3

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

	S			FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
58016	0	780118	034563	001.17	011.66	0334.3	02.57	02.27	24.9	000.65	004.34	0230.8	03.95	37.00	001.09	008.19	0318.7	02.36	02.07	26.4
58016	1	780510	038465	001.57	010.67	0332.4	04.38	03.87	25.0	000.98	003.98	0227.9	05.94	37.38	001.78	005.19	0307.6	04.08	03.60	27.5
58016	2	780802	041552	001.59	010.79	0308.5	03.52	03.34	26.8	000.95	005.31	0225.2	05.45	37.49	001.92	008.11	0299.8	03.30	03.12	27.8
58016	3	781025	044079	001.36	009.79	0322.9	03.98	03.40	25.9	000.90	003.74	0230.9	06.17	37.01	001.40	005.54	0301.3	03.50	02.95	28.2
58016	4	790124	046326	001.62	008.99	0285.7	03.12	02.67	29.1	000.80	003.51	0207.4	04.96	41.16	001.68	004.93	0266.9	02.68	02.30	31.6
58017	0	771230	034733	019.09	013.26	0315.7	02.92	02.52	22.3	001.26	002.32	0258.6	03.01	33.31	001.01	005.40	0334.0	02.14	01.85	25.6
58017	1	780629	038259	004.42	018.42	0334.7	02.47	02.37	23.5	000.10	001.74	0256.9	03.47	34.11	001.72	006.06	0332.4	02.59	02.58	25.5
58017	2	780921	040294	001.15	006.28	0349.3	02.48	02.34	24.4	000.08	001.55	0267.9	04.00	32.78	001.96	007.87	0336.4	02.81	02.63	24.9
58017	3	781213	042089	000.95	007.32	0352.3	02.65	02.17	24.2	000.08	001.47	0252.1	04.13	34.82	000.81	004.69	0339.8	02.76	02.28	25.3
58017	4	790314	045802	001.28	005.30	0347.0	02.09	01.91	24.7	000.04	001.24	0255.2	03.15	34.46	001.57	004.90	0334.7	02.09	01.92	25.5
58018	0	780109	035321	001.86	015.29	0317.3	02.39	02.19	25.1	000.67	008.23	0232.9	04.58	35.77	001.95	016.76	0308.0	02.37	02.17	26.0
58018	1	780510	038448	001.65	018.81	0322.8	02.20	02.03	24.8	000.53	010.75	0231.8	03.95	35.53	001.56	017.71	0311.9	02.15	01.99	25.7
58019	0	780110	012437	002.82	015.74	0345.4	02.49	02.14	23.4	000.84	002.50	0236.9	02.56	36.42	002.16	006.61	0324.6	02.24	01.91	25.9
58019	1	780503	014154	002.62	009.97	0332.1	02.95	02.45	24.9	000.87	002.29	0249.8	03.45	34.62	002.23	004.95	0320.7	02.76	02.33	26.4
58019	2	780728	015662	002.68	011.09	0338.2	02.46	02.36	24.4	000.93	002.47	0256.6	03.10	33.66	002.39	006.15	0335.5	02.24	02.19	25.1
58020	0	780119	031458	001.05	011.69	0393.1	02.20	01.93	21.4	000.46	003.96	0264.5	03.23	32.58	000.93	009.13	0377.6	01.96	01.72	22.4
58020	1	780503	034808	000.96	011.19	0400.1	02.73	02.34	21.1	000.58	004.65	0278.7	04.77	30.81	000.74	008.62	0378.7	02.49	02.12	22.4
58020	2	780728	036759	001.17	012.43	0365.4	02.18	02.13	22.8	000.60	004.85	0241.4	03.54	35.34	000.91	008.82	0337.4	01.92	01.87	25.0
58020	3	781019	038475	001.14	011.17	0381.6	02.24	02.10	22.0	000.60	005.07	0264.3	03.85	32.34	000.92	009.59	0364.5	02.09	01.93	23.1
58020	4	790122	040147	001.02	013.44	0376.0	02.31	01.90	22.2	000.46	004.67	0250.8	03.63	34.16	000.77	009.22	0353.0	02.05	01.72	23.9
58021	0	780120	038180	002.32	023.75	0791.9	02.20	01.95	10.6	000.69	003.95	0559.7	03.27	15.61	001.81	019.95	0757.2	02.42	02.16	11.1
58021	1	780512	040840	002.11	022.35	0799.4	02.38	02.15	13.5	000.78	005.75	0567.6	03.33	15.31	001.92	021.45	0750.9	02.39	02.17	11.2
58021	2	780814	042889	001.78	022.27	0802.9	02.30	02.23	13.5	000.69	004.73	0553.6	03.20	15.75	001.62	020.92	0747.6	02.27	02.22	11.2
58021	3	781117	046107	001.25	016.67	0857.1	03.68	03.19	10.0	000.31	003.07	0610.9	04.81	14.38	001.06	015.09	0829.7	04.06	03.56	10.3
58021	4	790326	049327	001.61	020.41	0821.6	02.78	02.41	13.3	000.55	003.99	0582.8	04.00	15.01	001.57	019.03	0779.7	02.85	02.48	10.8
58022	0	780121	020724	000.92	007.62	0314.3	02.87	02.56	26.9	000.63	003.54	0235.2	05.04	36.53	000.85	004.75	0301.7	02.61	02.31	28.4
58022	1	780510	022509	000.98	007.56	0325.1	02.83	02.43	25.1	000.54	003.70	0231.0	04.59	37.12	000.90	005.58	0313.2	02.54	02.25	27.2
58022	2	780811	024736	001.66	007.46	0321.6	02.24	02.17	26.2	000.63	004.01	0224.5	04.17	38.09	001.73	005.86	0308.9	02.06	01.97	27.4
58022	3	781101	026936	001.26	007.69	0329.6	02.70	02.25	25.7	000.55	005.63	0232.0	05.10	36.56	001.38	005.79	0310.6	02.98	02.48	27.3
58022	4	790208	028253	001.09	007.32	0316.4	02.44	02.20	25.8	000.52	004.55	0219.8	04.08	38.80	001.57	005.36	0298.1	02.14	01.94	28.4
58023	0	780207	047292	003.21	027.07	0393.5	02.30	02.06	19.9	000.72	004.93	0267.5	02.62	31.96	002.23	018.80	0365.5	02.25	02.01	22.0
58024	0	780201	038694	003.10	068.27	0605.5	02.29	02.01	12.3	001.15	019.04	0521.6	02.19	15.97	002.68	057.76	0644.7	01.86	01.65	11.9
58025	0	780201	023368	002.49	051.05	0455.1	03.20	02.77	16.3	000.32	003.92	0373.3	04.23	23.31	001.64	036.34	0432.6	03.24	02.82	17.9
58025	1	780517	025046	001.79	042.06	0462.1	02.67	02.58	15.5	000.23	002.87	0382.0	03.66	22.90	001.49	035.04	0444.7	02.72	02.64	17.5
58025	2	780809	026950	002.17	047.94	0451.7	02.78	02.31	16.6	000.29	003.19	0364.6	03.37	23.94	001.70	035.48	0429.3	02.64	02.77	18.3
58025	3	781031	028633	002.32	046.94	0456.3	03.45	02.94	15.5	000.23	002.92	0370.8	04.06	23.58	001.67	038.06	0425.0	03.25	02.79	18.0
58025	4	790131	030694	002.67	055.09	0448.3	03.93	03.12	16.3	000.77	010.31	0353.8	04.18	23.81	005.18	082.43	0390.7	03.00	02.38	16.5
58026	0	780203	026717	003.53	041.10	0374.1	01.70	01.61	19.7	001.49	023.21	0261.9	01.89	29.26	002.36	033.44	0359.5	01.58	01.50	21.1
58026	1	780519	030905	004.62	044.07	0355.5	02.03	01.87	20.2	002.51	024.26	0252.3	02.17	29.69	003.69	036.57	0335.8	00.67	00.61	21.8
58026	2	780811	032617	003.45	044.49	0334.0	01.60	01.54	21.4	001.46	023.29	0239.0	02.06	31.64	002.64	036.91	0318.3	01.62	01.55	23.0
58026	3	781031	034649	004.41	039.04	0375.8	02.98	02.52	19.7	002.39	019.48	0261.5	03.11	29.69	003.55	034.98	0357.7	02.71	02.28	20.9
58026	4	790202	035926	004.49	039.72	0344.6	02.59	02.07	21.0	002.18	020.36	0247.2	02.95	31.00	003.29	033.54	0329.6	02.55	02.03	22.5
58027	0	780206	066747	003.02	063.49	0640.8	04.79	04.36	11.8	000.49	014.00	0542.6	06.75	15.66	003.32	084.23	0596.5	04.14	03.83	11.9
58027	1	780518	068982	001.16	011.83	0666.4	06.42	05.52	12.9	000.17	001.85	0527.6	09.81	16.70	000.90	009.96	0647.0	05.50	05.82	13.3
58027	2	780829	077353	001.74	027.04	0659.4	04.90	04.77	12.5	000.16	002.24	0502.1	06.41	17.52	001.30	019.57	0636.2	04.95	04.87	13.2
58027	3	781122	079713	002.07	030.79	0620.9	06.01	04.96	13.1	000.21	002.69	0489.4	08.03	17.94	001.82	032.68	0606.6	05.98	04.95	13.3
58027	4	790223	081424	002.39	032.86	0621.4	05.21	04.54	13.0	000.28	004.45	0523.3	08.65	16.69	001.93	028.78	0636.3	06.25	05.46	12.9
58028	0	780215	040728	000.82	006.86	0599.7	02.98	02.56	14.5	000.09	000.17	0480.7	04.00	18.43	000.51	001.57	0572.6	03.12	02.62	15.3
58028	1	780526	045587	000.74	003.91	0615.5	02.48	02.24	14.2	000.39	000.19	0484.5	03.29	18.28	000.78	002.48	0593.4	02.23	02.34	14.7
58028	2	780817	052054	002.31	035.65	0579.7	01.81	01.70	13.8	000.29	004.43	0445.9	02.58	19.54	001.67	026.18	0555.6	01.69	01.60	14.7
58028	3	781108	056416	002.91	039.95	0569.5	03.55	03.26	13.8	000.35	004.76	0440.4	04.89	19.75	002.35	039.31	0546.1	03.47	03.16	14.6
58028	4	790212	060149	002.93	041.94	0550.8	02.14	01.92	13.3	000.41	009.02	0459.9	02.71	18.66	002.73	048.62	0545.1	01.79	01.62	14.0
58029	0	780225	094619	003.33	038.14	0580.9	02.41	02.40	13.6	000.89	009.42	0476.6	02.05	17.94	002.59	033.81	0590.5	02.94	02.89	13.6
58029	1	780530	101377	004.12	046.56	0565.1	02.33	01.98	13.6	001.00	011.39	0463.2	01.76	18.31	003.06	040.13	0533.6	02.37	01.93	14.5
58029	2	780822	115898	004.44	039.10	0564.2	02.04	01.92	13.2	001.44	021.57	0467.4	01.84	17.53	003.69	046.55	0528.1	01.83	01.72	14.6
58029	3	781110	120576	004.35	049.80	0543.1	02.16	01.75	14.0	000.96	009.47	0463.5	01.99	18.42	003.86	046.89	0508.7	02.11	01.75	14.9
58029	4	790212	127275	002.02	032.48	0697.7	01.02	00.91	11.7	000.62	019.19	0544.0	00.95	15.39	002.17	039.79	0626.7	00.87	00.78	12.7
58030	0	780223	022164	002.38	042.77	0731.7	04.24	04.15	11.0	000.32	004.74	0538.7	05.21	16.21	002.71	049.66	0687.8	04.36	04.28	11.4
58030	1	780602	023663	001.84	030.12	0791.1	05.57	05.35	13.5	000.26	002.73	0574.9	05.59	15.29	001.86	034.63	0738.4	04.75	04.94	11.1

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
58031	0	780225	024208	003.00	069.38	0615.5	02.21	02.16	12.1	000.32	006.63	0485.7	03.46	17.84	002.73	072.89	0564.0	02.28	02.24	12.9
58031	1	780526	026955	003.26	082.05	0580.0	02.07	01.32	12.3	000.44	009.60	0490.5	03.20	17.49	002.74	072.52	0565.9	01.98	01.77	12.8
58031	2	780817	030288	003.24	073.50	0576.6	01.71	01.65	12.6	000.41	007.12	0479.6	02.95	18.02	002.55	064.07	0548.0	01.59	01.64	13.5
58031	3	781115	032966	003.79	076.41	0567.5	03.63	03.06	12.7	000.48	008.07	0462.4	05.55	18.61	002.84	064.63	0538.2	03.36	03.01	13.6
58031	4	790222	035653	003.44	046.52	0561.3	02.58	02.29	13.7	000.37	004.84	0465.9	03.83	18.68	002.68	035.71	0537.1	02.55	02.17	14.7
58032	0	780306	021500	001.28	009.98	0439.5	02.68	02.28	19.3	000.47	005.96	0269.4	01.74	31.64	001.43	008.21	0434.7	02.49	02.21	19.6
58032	1	780602	023469	001.40	009.40	0439.7	02.58	02.39	19.3	000.50	005.78	0268.2	04.30	31.80	001.37	006.73	0424.5	02.47	02.30	20.1
58032	2	780822	025916	001.73	008.75	0477.2	03.04	02.84	17.9	000.61	003.75	0295.5	05.13	29.24	001.70	005.81	0470.3	02.78	02.63	18.2
58032	3	781114	027844	001.43	007.70	0474.8	03.09	02.51	18.0	000.55	003.02	0290.3	05.00	29.88	001.51	004.67	0468.6	03.46	02.81	18.4
58032	4	790216	029308	000.95	007.30	0468.1	02.33	02.01	18.4	000.08	002.36	0329.2	02.39	26.62	000.81	005.02	0441.5	02.17	01.88	19.6
58033	0	780306	110797	000.97	013.53	0385.6	02.19	01.89	21.6	000.39	003.24	0249.6	03.39	34.65	000.59	007.13	0353.3	01.89	01.65	24.2
58033	1	780608	117364	001.16	010.19	0352.0	01.74	01.53	23.9	000.37	003.78	0240.1	02.80	35.88	000.61	006.41	0354.7	01.76	01.65	24.1
58033	2	780929	133584	001.98	012.58	0392.3	01.74	01.65	21.2	000.34	003.37	0245.9	02.59	35.15	000.67	006.88	0377.8	01.58	01.49	22.7
58033	3	781218	136527	001.16	013.70	0384.7	02.03	01.76	21.6	000.27	003.51	0257.7	03.02	33.58	000.68	009.77	0371.5	01.79	01.56	22.7
58033	4	790320	138265	005.21	035.28	0388.0	01.61	01.39	19.3	000.58	005.68	0247.6	03.28	34.33	000.59	006.65	0392.5	01.94	01.68	21.9
58034	0	780517	042516	003.39	057.27	0706.3	06.59	05.94	11.0	000.73	015.95	0567.2	06.09	14.91	003.25	052.35	0666.8	06.60	05.91	11.6
58034	1	780823	047571	001.66	044.72	0787.6	03.15	03.07	10.3	000.32	006.27	0617.7	03.34	14.11	001.78	047.92	0732.2	02.92	02.86	10.9
58034	2	781117	049901	001.84	050.25	0770.3	03.23	02.83	10.4	000.33	006.30	0684.1	04.95	12.76	002.26	060.78	0750.2	03.90	03.37	10.4
58034	3	790227	052793	001.80	061.38	0796.7	03.61	03.10	09.9	000.69	033.66	0635.7	04.09	12.84	002.06	078.18	0717.4	03.09	02.66	10.4
58035	0	781004	040988	001.98	033.61	0664.1	03.65	03.43	12.3	001.32	015.91	0461.9	05.93	18.06	001.61	025.99	0636.5	04.29	04.03	12.3
58035	1	781220	042388	002.41	038.04	0688.7	03.93	03.26	11.7	002.20	030.60	0460.1	06.84	17.21	002.03	025.22	0694.9	05.36	04.46	11.9
58035	2	790328	045253	001.71	029.61	0678.5	03.45	03.09	12.1	001.91	029.52	0427.2	05.05	18.49	001.49	026.05	0627.5	03.72	03.34	13.1
58036	0	781117	043150	002.12	033.48	0726.2	02.38	02.08	11.3	000.28	001.93	0558.1	03.37	15.78	002.35	029.05	0706.3	02.61	02.23	11.6
58037	0	781129	030318	001.94	006.89	0323.0	02.45	02.31	26.1	000.59	002.84	0238.3	05.08	36.26	001.47	006.66	0308.2	02.40	02.29	27.4
58037	1	790307	033105	002.09	007.94	0314.9	02.77	02.47	25.5	000.72	002.46	0254.4	06.46	34.04	002.36	007.94	0317.2	03.27	02.82	26.2
58119	0	780920	043210	003.73	046.94	0466.6	01.84	01.65	16.1	000.70	008.52	0312.7	02.05	27.01	004.58	054.47	0425.2	01.79	01.61	16.8
58119	1	781207	045277	002.96	035.73	0455.8	01.72	01.42	17.0	000.24	003.12	0315.5	01.56	27.61	002.53	032.77	0435.1	01.56	01.37	17.9
58119	2	790309	048158	003.85	041.75	0427.7	01.59	01.29	17.5	000.51	006.20	0294.0	01.63	29.04	003.60	041.61	0411.9	01.50	01.30	18.1
68001	0	770929	021327	002.27	010.53	0553.6	02.68	02.39	15.4	000.57	000.62	0448.7	02.18	19.64	001.54	002.77	0538.7	02.67	02.85	16.1
68001	1	780404	032469	002.18	008.63	0579.3	03.00	02.51	14.8	000.65	000.79	0447.2	02.47	19.68	001.91	002.99	0539.8	02.89	02.51	16.1
68001	2	780630	036014	002.11	010.38	0537.3	02.89	02.83	15.8	000.56	000.57	0435.2	02.96	20.25	001.49	002.49	0528.6	03.19	03.10	16.5
68001	3	780925	038981	002.36	009.24	0587.0	02.76	02.31	14.6	000.58	000.68	0473.1	02.67	18.63	001.71	004.12	0560.9	02.87	02.93	15.4
68001	4	790103	042814	002.61	019.48	0526.5	03.33	02.62	15.7	000.59	000.87	0422.8	03.20	20.81	002.26	006.74	0508.4	03.41	02.69	16.8
68002	0	771013	017679	001.76	012.22	0427.7	04.94	04.68	19.6	000.73	002.99	0349.6	05.52	24.87	001.73	007.97	0399.4	04.71	04.47	21.2
68002	1	780405	022256	001.88	012.84	0446.4	06.33	05.50	18.8	000.71	002.93	0368.3	07.11	23.64	001.65	006.99	0421.3	05.60	04.89	20.2
68002	2	780705	025167	001.74	009.53	0428.1	04.55	04.21	19.8	000.46	002.35	0326.2	04.60	26.76	001.56	006.86	0402.6	04.06	03.76	21.2
68002	3	780922	030633	001.50	014.96	0501.6	04.26	03.99	15.7	000.31	002.79	0417.2	04.52	20.98	001.58	014.21	0461.4	03.72	03.48	18.1
68002	4	781219	033519	001.92	011.13	0427.5	06.91	05.67	19.7	000.71	002.63	0347.2	07.88	25.08	001.63	007.43	0400.1	06.19	05.08	21.2
68003	0	771014	025736	002.00	027.28	0435.0	03.12	03.47	18.3	000.45	002.23	0359.9	02.98	24.31	001.80	021.60	0422.3	02.38	02.68	19.1
68003	1	780406	028898	002.13	013.39	0445.4	03.43	03.38	18.7	000.40	001.43	0353.9	03.35	24.81	001.24	004.66	0424.2	02.92	02.63	20.3
68003	2	780711	030690	001.68	015.96	0482.3	01.87	01.76	17.3	000.50	006.17	0375.4	01.37	22.93	001.54	014.65	0450.9	01.29	01.21	18.5
68003	3	780927	032573	001.88	016.94	0467.3	02.86	02.66	17.7	000.43	002.02	0370.8	02.56	23.63	001.49	009.98	0446.3	02.21	02.08	19.0
68003	4	790103	036038	002.41	033.20	0426.2	02.58	02.06	18.2	000.51	003.87	0346.8	02.29	25.02	002.53	035.24	0404.2	01.92	01.53	18.9
68004	0	771015	021128	002.22	065.27	0662.5	01.82	01.85	11.5	000.33	009.10	0474.1	03.86	18.12	001.66	056.24	0644.8	01.80	01.80	12.0
68004	1	780405	026586	002.15	075.32	0715.2	02.20	01.98	10.5	000.41	012.33	0505.4	04.69	16.86	001.79	064.98	0681.5	02.29	02.08	11.2
68004	2	780712	029044	002.20	070.69	0660.9	02.29	02.22	11.4	000.45	013.17	0456.1	04.32	18.54	001.78	061.21	0640.6	02.25	02.16	11.9
68004	3	781024	032254	003.32	093.91	0647.0	02.14	01.86	11.0	000.53	012.04	0486.1	04.97	17.50	002.41	071.58	0637.6	02.59	02.27	11.7
68004	4	781227	034871	003.23	089.64	0617.4	01.87	01.53	11.5	000.40	008.02	0462.7	04.55	18.61	002.08	059.86	0610.7	02.41	02.01	12.4
68005	0	771021	020909	001.10	010.24	0477.2	02.57	02.40	17.9	000.35	002.17	0389.7	02.76	22.49	001.15	004.59	0454.0	02.73	02.51	19.0
68006	0	771028	027829	002.07	029.44	0455.4	09.33	08.42	17.3	000.52	002.13	0391.4	09.87	22.37	002.22	025.01	0429.5	08.82	07.96	18.6
68006	1	780421	035265	002.52	037.24	0480.6	10.33	09.17	15.2	000.71	003.60	0424.3	11.04	20.52	002.90	034.83	0442.0	08.97	08.06	17.5
68007	0	771114	009919	001.01	006.63	0511.3	04.48	04.23	15.9	000.48	002.45	0383.6	05.51	22.80	000.80	003.74	0475.4	04.41	04.19	18.3
68007	1	780411	012311	001.00	005.76	0493.9	03.16	02.74	17.5	000.51	001.58	0346.1	03.25	25.32	000.95	003.15	0467.8	02.33	02.53	18.6
68007	2	780720	013902	000.99	006.93	0497.5	02.51	02.57	17.3	000.51	002.23	0348.1	02.15	25.11	000.98	004.72	0464.4	02.17	02.26	18.6
68007	3	781017	016019	001.13	007.10	0479.6	02.84	02.68	17.9	000.59	001.79	0345.3	02.83	25.34	001.14	004.50	0460.7	02.84	02.66	18.8
68007	4	790118	017517	001.19	006.59	0492.9	02.96	02.39	17.5	000.53	001.80	0342.0	03.12	25.60	000.93	006.31	0446.9	02.47	02.00	19.2
68008	0	771123	029453	000.79	005.95	0473.3	01.28	01.11	18.3	000.33	001.68	0332.5	01.88	26.38	000.70	002.73	0432.1	01.26	01.09	20.2
68009	0	771122	024934	001.69	003.52	0565.0	03.00	02.51	15.3	000.79	001.69	0461.5	03.59	19.00	001.46	001.59	0531.6	03.43	02.90	16.4
68009	1	780418	028238	002.14	005.22	0553.2	03.01	02.33	15.5	001.30	002.22	0460.5	03.87	18.98	001.73	002.39	0515.8	03.28	03.12	16.9
68009	2	780717	030942	001.90	005.17	0560.5	03.14	02.98	15.4	001.01	002.83	0430.7	03.42	20.23	001.75	004.07	0515.3	02.80	02.64	16.8
68009	3	781004	033001	002.30	008.29	0554.4	02.55	02.33	15.4	001.41	010.30	0416.4	08.87	20.29	003.71	031.88	0486.5	07.55	06.93	16.1
68009	4	790102	034560	002.25	007.00	0532.6	02.74	02.17	16.1	000.78	001.72	0431.7	03.53	20.30	001.66	003.35	0511.4	02.84	02.24	16.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
68010	0	771201	029720	003.23	039.04	0504.3	03.94	03.36	15.4	001.37	017.55	0431.3	04.71	19.15	003.22	040.24	0460.6	03.14	02.72	16.6
68010	1	780425	034151	002.77	039.11	0475.9	03.76	03.61	16.2	001.32	019.95	0416.8	04.72	19.61	002.76	032.05	0457.7	03.39	03.26	17.1
68010	2	780721	038160	001.82	012.17	0578.4	01.16	01.21	14.7	000.39	001.09	0480.1	01.30	18.36	001.71	011.24	0547.6	00.90	00.97	15.5
68011	0	771201	027550	000.84	005.99	0392.4	01.32	01.05	21.9	000.23	001.12	0288.8	01.95	30.45	000.65	004.40	0373.0	00.96	00.76	23.2
68011	1	780424	031848	000.95	020.59	0430.7	01.63	01.44	19.0	000.33	001.45	0301.2	02.44	29.12	000.74	004.52	0405.6	01.32	01.19	21.3
68012	0	771208	031417	001.33	003.12	0579.7	07.24	06.00	15.1	000.63	000.37	0421.8	09.13	20.90	001.37	000.93	0546.5	06.85	05.67	16.0
68012	1	780424	034475	001.32	004.30	0584.9	06.62	05.73	14.9	000.65	000.59	0438.1	08.80	20.10	001.05	000.75	0555.9	06.06	05.25	15.8
68012	2	780724	038136	001.30	005.10	0622.5	06.28	06.15	14.0	000.64	001.12	0457.9	08.44	19.21	001.24	003.10	0595.9	05.55	05.53	14.6
68012	3	781013	042180	001.22	006.41	0613.8	06.86	05.98	14.1	000.56	000.46	0453.3	08.87	19.46	001.33	001.62	0575.9	06.34	05.53	15.2
68012	4	790108	044948	002.14	006.80	0621.8	08.29	06.55	13.9	000.87	000.77	0434.7	10.77	20.22	001.53	002.13	0578.5	07.50	05.91	15.1
68013	0	771214	032490	001.91	021.96	0322.1	03.90	03.69	24.5	001.08	007.10	0234.1	04.70	35.66	001.79	019.11	0313.3	03.83	03.71	25.4
68013	1	780419	037888	001.78	021.61	0342.9	04.17	03.34	23.2	001.09	008.99	0243.3	04.79	33.99	001.83	023.99	0327.5	04.13	03.91	23.7
68013	2	780719	043124	001.68	022.14	0334.0	03.70	03.73	23.7	000.85	003.61	0254.0	04.60	33.80	001.49	016.13	0329.3	03.58	03.60	24.6
68013	3	781016	048287	002.28	009.89	0346.0	03.63	03.29	24.0	001.26	002.75	0244.5	04.94	35.08	001.98	003.69	0319.1	03.47	03.21	26.7
68013	4	790112	052453	002.82	035.96	0319.9	03.55	03.00	23.0	001.77	013.90	0228.0	04.14	34.71	002.67	029.46	0309.2	03.64	03.07	24.3
68014	0	771221	019410	000.71	002.21	0684.8	03.54	02.89	12.8	000.11	000.14	0509.5	04.12	17.39	000.62	001.96	0626.9	03.55	02.90	14.0
68014	1	780428	022516	001.26	012.93	0696.6	03.30	03.16	12.3	000.12	000.30	0563.0	04.42	15.73	000.54	002.28	0637.1	03.58	03.47	13.8
68014	2	780817	025924	000.52	005.30	0726.2	03.41	03.30	12.0	000.08	000.13	0568.2	04.25	15.60	000.39	001.72	0674.2	03.78	03.67	13.0
68015	0	771222	019371	001.28	004.57	0635.4	03.57	02.90	13.7	000.58	001.07	0499.9	05.00	17.62	001.75	001.77	0593.0	03.55	02.90	14.7
68015	1	780428	022732	001.43	006.64	0625.4	03.65	03.14	13.9	000.73	001.18	0500.9	05.39	17.56	001.38	002.50	0585.9	03.51	03.38	14.9
68015	2	780721	025124	001.12	006.41	0611.3	02.82	02.78	14.2	000.60	001.25	0484.3	04.09	18.17	001.51	004.06	0589.3	02.65	02.68	14.7
68015	3	781013	027235	001.21	004.01	0626.3	04.12	03.54	13.9	000.60	001.01	0494.8	05.48	17.80	001.91	002.60	0602.0	04.38	03.75	14.4
68015	4	790108	029218	001.50	003.81	0600.4	04.11	03.26	14.5	000.68	000.89	0457.7	05.21	19.23	001.61	001.82	0569.2	04.09	03.27	15.3
68016	0	780104	017413	000.70	004.19	0307.5	01.85	01.60	28.0	000.11	002.13	0221.2	02.90	39.43	000.52	003.62	0294.4	01.68	01.47	29.3
68017	0	771230	021373	000.76	007.81	0528.6	03.24	02.74	15.3	000.29	003.48	0362.3	03.44	24.05	000.70	005.63	0495.8	03.00	02.54	17.4
68017	1	780501	026374	000.81	007.22	0532.2	03.10	02.75	15.2	000.25	002.77	0345.2	02.94	25.31	000.63	005.72	0509.8	02.75	02.43	17.3
68017	2	780801	029866	000.72	007.41	0538.2	03.26	03.10	16.1	000.27	002.84	0345.0	03.15	25.31	000.60	004.51	0509.6	03.06	02.89	17.1
68017	3	781019	033170	000.85	008.31	0553.0	03.45	03.06	15.6	000.27	003.49	0377.4	03.34	23.11	000.79	007.56	0534.6	03.28	02.90	16.1
68017	4	790117	037489	000.76	008.28	0515.1	03.27	02.69	15.7	000.46	003.26	0328.7	03.03	26.45	000.61	007.57	0486.9	02.70	02.22	17.7
68018	0	780105	011176	000.94	007.43	0324.1	02.03	01.85	26.2	000.41	002.87	0233.4	02.90	37.08	000.94	004.97	0308.6	01.90	01.70	27.7
68018	1	780427	012585	000.85	006.66	0330.3	01.92	01.73	25.8	000.33	002.67	0235.7	02.63	36.80	000.80	005.23	0320.2	01.73	01.63	26.7
68018	2	780725	013800	000.87	008.78	0327.1	01.56	01.60	25.8	000.36	003.45	0231.2	02.35	37.29	000.87	007.19	0315.9	01.56	01.53	26.8
68018	3	781017	016346	000.90	007.74	0337.4	01.80	01.67	25.2	000.39	003.21	0234.2	02.77	36.88	000.83	005.83	0322.2	01.75	01.63	26.5
68018	4	790116	019811	000.88	006.19	0327.8	01.97	01.55	26.1	000.39	002.73	0229.4	01.07	37.75	000.92	004.49	0312.9	01.84	01.54	27.4
68019	0	780105	008113	001.10	007.45	0345.4	02.66	02.35	24.6	000.88	002.63	0217.4	04.39	39.54	001.00	005.39	0334.3	02.60	02.30	25.6
68019	1	780505	009723	001.22	006.94	0362.1	03.44	02.95	23.5	000.92	002.61	0232.1	05.26	37.09	001.08	005.29	0351.8	03.20	02.72	24.3
68019	2	780728	011908	001.55	007.12	0305.0	02.63	02.55	27.3	000.96	003.42	0221.5	04.70	38.56	001.46	006.58	0303.8	02.44	02.39	27.8
68019	3	781022	013658	001.23	007.10	0310.4	03.02	02.58	27.3	000.87	002.70	0222.4	05.09	38.65	001.18	005.07	0296.1	02.81	02.43	28.8
68019	4	790122	015747	001.32	006.51	0306.6	02.66	02.21	27.6	000.80	002.60	0207.5	04.51	41.41	001.16	004.62	0289.9	02.40	01.99	29.4
68020	0	780113	006334	001.79	031.70	0365.8	02.91	02.44	21.0	000.89	007.92	0257.3	03.71	32.53	001.84	034.78	0346.3	02.72	02.29	21.8
68020	1	780503	008293	001.18	027.23	0347.0	02.60	02.17	22.5	000.75	006.95	0251.3	03.49	33.52	001.13	024.68	0328.0	02.17	01.93	23.9
68020	2	780731	011531	001.28	027.46	0333.9	02.43	02.22	23.3	000.74	006.86	0240.6	03.41	34.95	001.13	021.94	0326.8	02.37	02.18	24.3
68020	3	781102	013386	001.25	022.43	0365.4	03.06	02.62	21.9	000.68	005.98	0251.8	03.94	33.67	001.02	022.03	0338.4	02.69	02.31	23.5
68020	4	790207	014604	001.28	027.32	0325.6	02.68	02.36	23.8	000.80	006.98	0234.2	04.01	35.80	001.35	028.35	0309.5	02.49	02.19	24.7
68021	0	780116	020215	001.58	017.62	0327.1	03.37	02.93	24.7	000.76	007.88	0253.0	06.42	33.12	001.67	013.96	0306.4	03.35	02.96	26.5
68022	0	780117	021522	000.89	009.90	0762.0	01.53	01.38	11.4	000.26	000.46	0540.9	02.21	16.35	000.88	004.53	0742.3	01.92	01.74	11.7
68022	1	780504	023165	001.05	008.37	0801.9	02.48	02.07	10.8	000.43	000.59	0555.2	03.48	15.91	001.47	005.94	0760.4	03.06	02.55	11.4
68022	2	780807	025700	000.88	005.16	0771.3	01.88	01.80	11.3	000.36	000.63	0539.6	02.47	16.37	000.88	003.43	0751.7	02.12	02.07	11.6
68022	3	781103	028055	001.22	004.14	0792.3	02.33	02.14	11.0	000.41	000.55	0548.4	02.81	16.11	001.44	003.37	0745.4	02.52	02.32	11.7
68022	4	790226	030490	001.05	004.03	0770.3	02.23	01.98	11.4	000.44	000.60	0554.7	02.96	15.92	001.73	002.74	0749.1	02.94	02.59	11.6
68023	0	780120	037474	002.09	015.52	0366.6	03.41	03.03	22.6	000.81	004.82	0259.8	04.16	32.85	002.03	011.32	0340.3	03.22	02.86	24.3
68023	1	780516	038998	001.83	014.69	0348.5	02.94	02.58	23.5	000.73	005.78	0253.3	03.78	33.51	001.91	012.72	0343.7	02.58	02.53	23.9
68023	2	780815	041080	002.13	015.54	0355.6	02.45	02.59	22.9	000.68	005.15	0250.6	02.97	34.00	002.09	011.59	0341.4	02.34	02.48	24.2
68023	3	781106	044153	002.46	009.36	0340.6	03.61	03.04	24.3	001.02	003.24	0248.7	04.64	34.50	003.18	006.70	0325.2	03.53	02.99	25.6
68023	4	790209	045303	002.88	009.92	0334.8	03.20	02.93	24.7	000.92	003.86	0240.4	03.74	35.55	003.11	009.74	0312.2	02.77	02.52	26.2
68024	0	780121	018286	002.50	012.61	0328.4	03.26	02.91	24.9	001.04	005.21	0245.1	05.01	34.56	002.72	006.88	0308.1	02.82	02.52	27.0
68024	1	780512	024015	002.53	011.80	0320.6	03.07	02.51	25.5	000.71	004.84	0241.8	04.91	35.15	002.76	010.25	0306.6	02.77	02.32	26.7
68024	2	780803	028561	002.40	013.69	0311.9	02.60	02.60	26.0	000.63	007.09	0211.3	04.15	39.51	002.73	009.36	0283.8	02.35	02.30	28.8
68024	3	781026	032249	002.37	014.01	0344.2	03.41	02.95	23.7	000.66	008.71	0254.8	05.37	32.78	002.46	011.52	0320.6	03.12	02.68	25.5
68024	4	790124	036835	001.78	015.38	0349.6	03.37	02.85	23.4	000.51	008.67	0244.9	05.43	34.10	001.48	012.37	0324.2	03.00	02.53	25.4

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	JDJM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
68025	0	780202	018660	001.06	017.58	0418.8	01.49	01.36	19.7	000.10	001.59	0321.0	01.82	27.39	000.90	017.05	0374.2	01.72	01.11	21.9
68025	1	780602	021843	000.40	005.62	0417.6	01.29	01.22	23.7	000.05	000.17	0310.7	01.42	28.50	000.30	001.85	0386.6	01.18	01.11	22.7
68026	0	780203	033884	001.89	035.46	0465.1	03.22	02.96	16.8	000.27	002.05	0361.7	03.51	24.24	001.47	025.14	0427.5	03.18	02.96	18.8
68026	1	780518	038694	002.21	034.43	0477.4	03.45	03.32	15.5	000.29	001.86	0385.4	03.87	22.78	001.61	018.58	0444.7	03.27	02.86	18.5
68026	2	780809	044439	001.94	036.89	0465.0	02.98	02.97	16.8	000.36	001.87	0385.2	03.77	22.78	001.63	024.21	0446.0	03.13	03.11	18.1
68026	3	781030	050808	002.74	052.74	0433.5	03.65	03.15	15.9	000.46	003.28	0355.8	04.85	24.47	002.00	035.11	0409.8	03.72	03.21	18.8
68026	4	790130	056307	002.09	047.88	0410.3	03.53	02.80	18.0	000.44	004.72	0340.7	05.01	25.37	002.03	039.50	0387.6	03.59	02.87	19.4
68027	0	780209	023273	002.07	027.20	0522.2	03.36	02.87	15.5	000.25	003.95	0439.2	04.07	19.88	001.52	019.73	0490.6	02.58	02.18	16.8
68027	1	780522	025965	002.16	021.99	0525.6	02.83	02.43	15.6	000.21	001.78	0435.4	03.96	20.21	001.22	013.48	0497.1	02.15	01.81	15.9
68027	2	780804	031423	002.63	030.16	0486.3	02.31	02.15	16.4	000.31	003.00	0395.8	03.06	22.09	002.06	020.73	0468.1	02.09	01.90	17.4
68027	3	781024	034109	002.42	024.81	0518.9	02.71	02.37	15.7	000.28	003.32	0418.2	03.25	20.90	002.02	019.19	0490.5	02.18	01.91	16.8
68027	4	790123	036957	002.70	025.65	0489.1	02.60	02.15	16.5	000.38	003.24	0384.2	03.05	22.71	002.33	022.94	0468.4	02.10	01.76	17.3
68028	0	780210	013594	001.17	012.95	0384.3	02.83	02.51	21.7	000.76	004.48	0231.5	03.57	36.81	000.93	010.82	0365.8	02.58	02.35	22.9
68028	1	780522	015908	002.06	011.14	0319.0	03.07	02.55	25.9	000.98	003.48	0238.9	04.06	35.83	001.91	009.29	0311.3	02.99	02.57	26.7
68028	2	780810	017918	002.26	012.16	0335.9	03.05	02.84	24.5	001.06	003.53	0240.2	03.86	35.60	002.25	009.67	0320.6	02.83	07.74	25.8
68028	3	781031	020729	002.16	011.82	0340.5	03.23	02.76	24.2	000.91	003.18	0248.2	04.05	34.63	001.95	008.63	0318.7	03.07	02.62	26.2
68028	4	790202	023163	001.52	013.71	0341.3	03.40	02.73	24.1	000.65	004.15	0243.9	04.29	35.12	001.51	011.22	0321.8	03.28	02.64	25.7
68029	0	780405	023143	001.29	009.98	0717.1	02.53	02.28	12.0	000.26	000.66	0509.5	02.34	17.34	000.61	003.71	0667.6	02.86	02.60	13.1
68029	1	780725	032216	000.61	010.96	0827.3	00.80	00.39	13.5	000.38	002.85	0655.0	00.71	13.44	001.08	014.38	0784.1	00.77	00.83	10.9
68029	2	781018	036059	001.00	006.73	0659.5	02.17	02.01	13.2	000.39	000.85	0510.6	02.18	17.28	001.08	005.31	0609.5	02.39	02.20	14.2
68029	3	781227	038961	001.08	006.87	0619.7	02.41	02.30	14.0	000.43	000.57	0467.7	02.29	18.87	001.33	004.01	0569.6	02.55	02.16	15.2
68029	4	790326	041445	000.89	003.75	0659.2	02.30	02.05	13.3	000.35	000.46	0494.2	02.31	17.88	001.22	003.33	0621.5	02.52	02.24	14.0
68030	0	780210	030728	001.19	021.18	0345.1	02.60	02.22	23.2	000.47	013.55	0246.4	03.05	32.94	001.84	033.29	0351.2	01.63	01.40	21.6
68030	1	780524	034434	002.52	027.37	0343.3	01.78	01.51	22.5	001.31	013.28	0242.0	02.49	33.33	002.40	022.03	0326.3	01.76	01.62	24.3
68030	2	780815	038999	001.94	029.64	0336.2	02.60	02.81	22.8	001.09	016.04	0239.3	03.71	33.09	001.71	030.99	0321.7	02.18	02.35	23.6
68030	3	781103	042537	001.78	029.17	0318.1	02.28	02.11	26.0	000.82	016.95	0235.2	03.14	33.54	001.57	028.81	0309.8	02.13	01.99	24.6
68030	4	790104	046012	001.68	028.16	0346.5	03.39	02.68	22.4	000.82	013.27	0241.8	04.36	33.44	001.50	023.52	0328.0	03.13	02.47	23.9
68031	0	780211	017639	002.13	054.07	0466.4	03.52	02.93	15.9	000.22	003.13	0406.6	03.13	21.51	001.66	047.52	0435.3	03.29	02.75	17.2
68032	0	780213	027057	001.43	023.61	0346.4	02.82	02.59	22.9	000.49	010.39	0240.5	03.16	34.32	001.07	028.10	0335.9	01.83	01.67	23.1
68032	1	780523	031582	001.54	023.02	0357.0	02.95	02.51	22.3	000.65	011.95	0247.8	03.53	33.01	001.32	016.85	0335.7	02.39	02.56	24.2
68032	2	780822	041533	001.63	028.11	0337.5	02.85	02.81	22.9	000.63	013.71	0238.1	03.61	33.89	001.36	023.90	0327.0	02.71	02.67	24.0
68032	3	781113	045459	001.77	023.80	0337.8	02.44	01.96	23.3	000.94	012.93	0231.6	01.30	34.79	001.53	018.68	0316.5	02.57	01.98	25.2
68032	4	790220	050827	002.08	031.93	0345.1	02.41	02.05	22.1	000.90	016.61	0240.1	02.59	32.95	001.90	030.17	0328.0	02.00	01.69	23.2
68033	0	780211	030402	002.00	021.97	0552.9	03.10	02.53	14.9	001.03	017.31	0419.0	03.59	19.73	001.13	014.45	0527.5	02.99	02.45	16.0
68033	1	780627	031263	001.97	019.35	0550.3	02.77	02.53	15.1	000.50	013.75	0416.1	03.02	20.14	000.80	010.11	0529.0	02.51	02.53	16.2
68033	2	780920	032987	002.51	022.90	0490.7	01.84	01.69	16.6	000.91	013.78	0416.6	02.98	20.11	001.16	010.20	0476.4	01.58	01.45	17.8
68033	3	781211	034861	003.71	046.64	0501.5	01.67	01.51	15.1	001.52	017.85	0391.3	02.18	20.91	002.77	029.22	0491.2	01.58	01.49	16.2
68033	4	790312	036570	004.25	044.52	0538.6	02.89	02.50	14.3	001.38	018.07	0419.6	03.60	19.60	003.25	027.73	0535.9	02.97	02.59	15.0
68034	0	780214	031596	003.37	039.61	0300.6	02.06	01.98	23.7	000.76	009.09	0239.7	02.74	34.58	002.65	034.68	0294.4	01.98	01.86	24.8
68034	1	780525	036232	003.40	035.42	0300.5	02.28	02.34	24.2	001.36	014.41	0238.4	02.81	33.56	002.90	032.47	0291.5	02.09	01.97	25.2
68034	2	780810	040074	003.48	030.57	0295.2	02.04	02.04	25.0	001.00	012.08	0225.0	02.51	35.88	002.92	029.88	0286.7	01.87	01.90	25.8
68034	3	781030	042445	003.30	038.76	0317.2	02.50	02.19	22.8	000.90	012.59	0240.4	03.04	33.71	002.60	032.92	0303.7	02.13	02.03	24.3
68034	4	790201	045803	003.17	036.24	0305.3	02.51	02.01	23.8	000.96	014.74	0235.1	03.27	33.94	002.67	033.80	0292.3	02.33	01.87	25.0
68035	0	780221	031812	002.47	056.29	0437.3	08.02	07.56	16.6	000.35	004.99	0349.4	10.74	24.75	002.06	050.24	0413.8	07.59	07.21	17.7
68035	1	780601	036325	001.62	025.41	0462.5	07.82	06.94	17.5	000.19	002.25	0360.2	11.20	24.34	001.46	021.97	0437.6	07.41	06.49	18.5
68036	0	780221	035802	001.36	011.02	0342.3	03.14	02.75	24.4	001.03	002.94	0243.7	05.46	35.25	001.18	007.19	0323.6	02.85	02.49	26.1
68036	1	780526	041866	001.10	010.35	0329.1	03.10	02.75	25.4	000.39	003.68	0230.6	05.37	37.07	001.07	007.39	0312.5	02.97	02.66	27.0
68036	2	780816	048738	001.06	009.73	0320.0	03.02	02.94	25.2	000.84	003.23	0228.3	05.19	37.57	000.98	006.86	0301.4	02.91	02.86	28.1
68036	3	781107	057541	001.12	009.14	0316.1	03.65	03.14	25.5	000.74	002.58	0229.2	06.42	37.64	001.16	006.42	0307.5	03.59	03.08	27.6
68036	4	790213	064307	001.22	010.64	0332.6	03.48	03.03	25.1	000.83	002.67	0243.4	06.01	35.45	001.11	006.48	0313.3	03.08	02.70	27.1
68037	0	780221	024945	002.56	024.50	0557.0	07.65	07.26	14.7	000.27	001.36	0438.8	09.99	20.07	001.73	013.62	0536.8	07.45	07.21	15.7
68037	1	780519	027388	001.96	017.89	0584.1	07.62	05.38	14.3	000.26	001.91	0491.6	10.24	17.90	001.83	022.23	0581.2	07.07	06.51	14.2
68037	2	780817	031510	002.22	018.64	0566.8	07.38	06.87	14.8	000.33	001.43	0446.2	09.27	19.73	001.80	015.91	0534.9	06.57	06.01	15.6
68038	0	780224	035504	002.55	044.78	0693.7	08.10	07.71	11.5	000.58	009.18	0509.0	08.79	16.88	002.83	058.44	0638.7	06.45	06.12	11.9
68038	1	780531	040444	002.29	041.60	0710.9	08.90	08.31	11.3	000.92	013.66	0518.9	09.41	16.32	002.82	057.34	0659.9	07.25	06.63	11.5
68038	2	780821	043559	002.93	050.34	0720.4	08.96	08.53	11.0	001.36	022.53	0562.3	11.23	14.73	003.55	075.39	0716.7	08.38	07.98	10.4
68038	3	781113	046842	002.49	042.84	0726.1	09.59	07.57	11.1	000.46	008.35	0550.7	06.46	15.69	002.15	039.92	0702.0	05.25	04.18	11.4
68038	4	790216	050914	002.60	047.94	0684.5	09.33	08.21	11.5	001.44	031.86	0494.4	10.13	16.15	003.30	082.25	0613.9	06.31	05.61	11.7
68039	0	780310	028583	000.86	015.75	0448.4	02.46	02.19	18.6	000.46	010.03	0272.6	04.48	30.60	000.65	011.99	0433.6	02.44	02.18	19.5
68039	1	780606	032271	000.90	014.22	0443.2	02.24	02.23	18.9	000.53	009.25	0268.1	03.97	31.20	000.73	011.68	0417.4	01.36	01.95	20.2
68039	2	780824	036921	001.09	015.43	0449.5	01.87	01.88	18.6	000.44	010.53	0266.4	03.29	31.19	000.72	012.54	0425.3	01.58	01.61	19.8

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
68040	0	780310	026574	000.59	007.49	0651.7	03.90	03.43	13.1	000.38	000.50	0489.0	04.93	18.10	000.75	014.95	0607.9	02.81	02.45	13.9
68040	1	780818	030172	000.66	007.07	0636.5	03.04	02.87	13.7	000.10	000.41	0474.7	04.26	18.64	000.57	007.49	0603.3	02.65	02.47	14.3
68040	2	781114	033085	000.90	006.13	0635.7	03.25	02.53	13.6	000.09	000.20	0480.4	04.65	18.44	000.37	003.63	0605.3	03.07	02.49	14.6
68040	3	790221	034444	000.84	006.04	0646.1	03.09	02.67	13.5	000.13	001.60	0480.7	03.68	18.34	001.06	022.62	0584.1	02.07	01.82	14.2
68041	0	780327	034574	001.24	010.05	0444.3	01.75	01.59	19.1	000.26	001.69	0298.7	02.08	29.34	000.85	009.37	0415.2	01.83	01.66	20.5
68041	1	780613	037705	001.19	018.65	0398.5	01.38	01.27	23.5	000.27	002.69	0250.3	01.39	34.73	000.92	012.75	0384.4	01.31	01.22	21.7
68041	2	780905	041082	002.81	055.47	0345.4	01.16	01.10	20.1	001.07	020.57	0245.9	01.32	31.49	002.25	047.53	0337.7	01.11	01.04	21.1
68042	0	780516	026160	000.48	003.68	0633.0	02.44	02.14	13.8	000.10	000.06	0469.5	03.00	18.87	000.25	001.78	0608.7	02.24	01.99	14.4
68043	0	780522	018718	000.79	008.72	0888.6	02.03	01.74	09.8	000.08	000.27	0776.1	03.24	11.42	000.86	007.74	0756.7	02.15	01.86	11.4
68044	0	781006	031439	000.71	004.50	0272.9	02.34	02.13	31.4	000.19	002.11	0205.4	04.20	42.36	000.47	003.25	0261.6	02.38	02.19	33.0
68044	1	790215	035249	000.71	004.58	0275.3	02.16	01.86	31.1	000.27	002.02	0189.2	04.01	45.90	000.88	004.11	0279.7	02.27	01.96	30.6
68045	0	781108	023252	001.05	007.35	0482.9	02.96	02.64	17.8	000.53	001.15	0356.5	03.06	24.64	000.97	003.06	0441.2	02.89	02.57	19.7
68045	1	790216	028201	001.63	007.77	0465.8	03.62	03.14	18.4	000.61	002.19	0341.3	03.35	25.58	001.48	004.93	0442.3	03.59	03.12	19.5
68046	0	781226	019153	000.95	001.46	0545.0	01.87	01.54	16.0	000.36	000.23	0440.0	02.14	20.08	000.73	000.67	0501.2	01.71	01.41	17.5
68046	1	790322	023633	000.97	001.34	0548.6	01.86	01.58	16.3	000.35	000.25	0435.8	02.26	20.28	000.81	001.62	0508.6	01.54	01.32	17.2
68047	0	790104	021875	000.65	005.97	0596.2	02.72	02.18	14.6	000.38	000.18	0442.0	04.03	20.04	000.30	003.27	0566.2	02.61	02.09	15.5
68047	1	790329	025821	000.84	007.08	0651.0	03.14	02.56	13.3	000.37	000.71	0478.8	04.93	18.47	000.81	009.50	0605.2	02.96	02.56	14.2
68058	0	781002	022055	000.54	002.99	0584.2	05.02	04.50	15.0	000.07	000.10	0463.6	07.74	19.11	000.42	001.03	0556.9	04.43	04.06	15.8
68058	1	781215	023980	000.45	002.27	0555.9	05.85	04.93	15.8	000.39	000.16	0441.1	08.45	20.08	000.43	001.15	0530.8	04.38	03.89	16.6
68058	2	790328	025504	000.51	002.26	0562.5	05.24	04.53	15.6	000.07	000.13	0436.4	08.58	20.30	000.41	001.63	0534.1	04.41	03.90	16.6
68082	0	780905	027375	002.14	043.50	0457.8	03.34	03.14	16.6	000.56	015.74	0363.8	05.06	22.72	001.45	034.99	0436.4	03.63	03.40	17.8
68082	1	781127	029669	002.01	046.51	0461.1	04.78	04.12	15.4	000.53	024.19	0334.0	04.45	23.67	001.20	036.23	0430.1	02.50	02.16	18.0
68082	2	790301	032582	002.35	048.33	0443.7	04.42	03.81	15.8	000.68	021.99	0364.6	04.16	22.10	001.61	038.09	0412.3	03.32	02.87	18.5
68083	0	780907	028722	002.97	061.35	0458.8	02.19	02.01	15.7	000.43	004.25	0400.6	01.64	21.70	003.46	065.80	0416.0	02.07	01.89	16.7
68083	1	781130	030217	003.03	061.05	0452.2	01.89	01.71	15.9	000.43	003.78	0407.8	01.32	21.36	003.11	059.33	0424.6	01.92	01.73	16.3
68083	2	790305	031761	003.10	058.68	0439.0	01.81	01.71	16.4	000.39	003.67	0417.0	01.41	20.91	002.86	056.56	0397.8	01.88	01.80	17.8
68084	0	780912	026796	001.40	023.53	0463.4	04.94	04.68	17.6	000.34	003.21	0381.8	05.56	22.86	001.36	017.15	0439.1	04.56	04.31	18.8
68084	1	781212	031208	001.43	027.54	0456.1	05.37	[illegible]	17.7	000.38	003.27	0367.5	06.07	23.72	001.30	020.83	0417.4	05.12	04.19	19.5
68084	2	790314	032614	002.08	014.22	0473.2	06.36	05.60	17.7	000.48	002.73	0381.2	07.63	22.92	001.37	009.28	0446.5	06.18	05.44	19.0
68085	0	780914	017133	002.04	017.10	0305.8	02.45	02.37	26.2	000.71	007.98	0229.9	04.62	36.25	002.01	019.04	0284.1	02.19	02.08	27.6
68085	1	781206	018918	001.78	016.66	0283.0	02.41	02.31	28.2	000.88	003.57	0210.4	05.19	40.53	001.88	011.84	0258.1	02.55	02.05	31.3
68085	2	790319	021456	001.27	012.25	0295.3	02.53	02.19	27.8	000.60	007.81	0216.9	04.86	38.37	001.17	015.69	0285.4	02.50	02.16	28.2
68086	0	780919	019725	000.85	014.45	0824.9	02.52	02.30	10.4	000.34	002.16	0580.1	03.75	15.17	001.04	010.71	0774.0	03.05	02.79	11.1
68086	1	781208	021365	000.68	006.38	0774.2	02.75	02.27	11.3	000.28	001.25	0535.1	03.94	16.49	000.74	005.46	0730.4	03.21	02.64	11.9
68086	2	790309	022146	000.84	008.71	0738.3	02.65	02.21	11.8	000.34	001.27	0519.6	04.00	16.97	000.85	005.98	0686.9	03.17	02.64	12.6
78001	0	771102	010913	002.15	023.66	0543.7	04.84	04.18	15.1	000.24	001.51	0438.7	07.48	20.07	000.78	006.62	0546.6	05.44	04.66	15.8
78001	1	780407	015152	001.28	013.16	0542.5	04.97	04.27	15.6	000.19	001.01	0414.9	06.72	21.26	000.73	005.33	0523.9	04.86	04.33	16.5
78001	2	780707	017205	001.54	015.45	0538.4	03.89	03.87	15.5	000.21	001.97	0423.9	05.89	20.73	001.15	010.31	0516.6	04.57	04.44	16.5
78001	3	780928	018943	001.79	020.86	0546.2	04.11	03.83	15.2	000.30	002.59	0431.7	05.91	20.31	001.26	013.49	0531.9	04.19	03.93	15.9
78001	4	781229	021526	000.81	005.55	0568.2	06.58	05.29	15.3	000.13	000.13	0415.5	07.36	21.31	000.33	000.71	0524.7	06.07	04.88	16.8
78002	0	771103	010578	000.56	006.47	0648.2	01.72	01.50	13.4	000.08	000.15	0496.8	02.15	17.83	000.24	000.91	0620.5	01.53	01.34	14.2
78002	1	780412	014744	000.53	006.39	0650.2	01.76	01.50	13.4	000.38	000.13	0497.6	02.52	17.80	000.25	001.34	0612.7	01.70	01.35	14.5
78002	2	780711	017911	000.46	004.15	0662.7	01.64	01.53	13.2	000.08	000.07	0486.0	02.07	18.23	000.35	000.72	0627.3	01.53	01.44	14.0
78002	3	780929	022267	000.86	008.14	0665.1	01.51	01.44	13.3	000.11	000.16	0493.0	02.02	17.97	000.50	002.71	0624.3	01.43	01.37	13.9
78002	4	790102	027453	001.09	007.84	0636.0	01.92	01.50	13.6	000.12	000.13	0452.4	02.80	19.58	000.78	002.30	0596.2	01.85	01.47	14.7
78003	0	771115	012643	001.60	036.29	0501.1	04.81	04.38	15.8	000.15	002.20	0409.2	06.04	21.46	001.90	030.74	0486.8	04.88	04.38	16.3
78003	1	780418	017464	001.83	037.08	0540.6	05.43	04.35	14.7	000.17	002.26	0443.5	05.85	19.81	001.94	032.56	0511.7	05.10	04.74	15.5
78003	2	780719	020862	002.07	042.81	0511.7	03.96	03.86	15.1	000.21	002.74	0416.7	04.65	21.03	001.98	030.24	0487.9	04.10	03.99	16.3
78003	3	781010	023538	000.99	010.45	0534.8	05.37	04.92	15.0	000.13	000.23	0419.5	07.76	21.10	000.98	003.94	0500.9	04.92	04.58	17.3
78003	4	781229	027668	000.96	013.02	0498.4	05.11	04.10	17.0	000.11	000.25	0393.8	07.36	22.48	000.88	005.94	0477.7	04.72	03.76	18.1
78004	0	771206	008958	002.05	039.75	0461.3	01.72	01.52	15.7	000.27	002.68	0406.4	01.46	21.55	001.58	030.83	0445.8	01.48	01.31	17.7
78004	1	780412	012467	001.78	030.73	0499.5	01.85	01.51	15.3	000.24	002.58	0431.4	01.47	20.33	001.96	027.43	0457.9	01.45	01.27	17.4
78004	2	780713	016530	001.89	028.27	0470.0	01.40	01.37	17.0	001.00	015.16	0365.7	01.15	22.58	001.63	020.82	0447.2	01.11	01.09	18.2
78004	3	781009	019160	003.98	068.26	0447.5	01.77	01.73	15.6	002.36	035.37	0370.3	01.42	20.51	003.83	063.52	0418.4	01.31	01.28	16.7
78004	4	781227	021201	002.41	032.19	0447.0	04.97	04.08	17.6	001.42	023.76	0365.5	06.86	21.77	002.41	031.71	0428.9	04.59	03.77	18.2
78005	0	780104	010307	001.53	021.98	0311.1	03.45	02.99	25.3	000.90	012.43	0222.0	05.57	36.29	001.13	011.87	0292.2	03.65	03.17	28.2
78005	1	780426	012431	001.21	010.09	0304.7	03.35	03.22	27.3	000.86	007.93	0233.1	05.51	35.72	001.12	007.06	0304.4	03.27	03.09	27.7

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EJGENE

EPA NU	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
78006	0	780109	0063[illegible]	[illegible]	068.18	0452.5	05.91	05.10	15.6	000.45	004.04	0376.8	07.71	23.06	002.37	058.00	0437.6	05.81	05.00	16.5
78006	1	780504	008420	000.55	008.39	0499.2	05.45	04.56	17.2	000.08	000.72	0420.7	08.50	21.01	000.23	003.69	0464.6	04.71	04.01	18.8
78006	2	780731	011399	000.73	010.78	0480.8	04.65	04.25	17.7	000.08	000.93	0390.6	06.21	22.61	000.35	004.01	0454.8	04.05	03.74	19.1
78006	3	781025	013048	000.64	010.66	0503.1	05.62	04.79	17.0	000.11	002.23	0410.2	05.90	21.42	000.31	005.97	0477.2	04.52	03.85	18.1
78006	4	790125	014888	000.88	009.69	0488.5	06.09	05.32	17.5	000.07	000.58	0382.5	07.79	23.12	000.34	002.14	0474.2	06.72	05.55	18.5
78007	0	780112	004177	001.16	006.22	0375.5	01.76	01.53	22.8	000.68	002.15	0252.7	03.30	34.35	001.03	003.50	0356.8	01.73	01.50	24.2
78007	1	780519	007598	001.44	009.11	0363.4	02.25	02.13	23.2	000.39	005.41	0237.8	03.60	35.55	001.27	007.37	0349.9	02.20	02.03	24.2
78007	2	780814	011434	001.46	009.47	0360.6	01.90	01.92	23.3	000.76	002.31	0235.6	02.79	36.70	001.26	006.46	0342.9	01.91	01.88	24.8
78007	3	781102	013710	001.36	008.24	0349.5	02.20	01.86	24.2	001.03	005.60	0233.1	03.47	36.17	001.26	007.65	0336.8	02.28	01.93	25.1
78007	4	790208	016820	001.39	009.07	0354.0	01.98	01.76	23.8	001.10	008.78	0219.5	02.74	37.45	001.75	015.52	0333.7	01.86	01.66	24.3
78008	0	780117	007932	001.75	017.85	0324.5	01.72	01.52	24.8	001.03	009.33	0228.6	02.60	35.97	001.70	020.82	0307.3	01.48	01.31	25.6
78008	1	780504	011660	003.73	082.15	0272.9	01.15	00.95	21.4	001.72	033.82	0198.3	01.84	34.52	003.51	081.40	0254.8	01.31	00.84	22.5
78008	2	780727	015936	002.21	045.25	0292.8	01.39	01.36	23.9	001.20	019.40	0202.7	01.95	37.42	002.16	048.66	0269.6	01.26	01.20	25.1
78008	3	781025	019293	002.29	048.10	0307.5	01.59	01.33	22.7	001.35	025.08	0230.0	02.64	32.40	002.55	056.41	0301.3	01.28	01.29	22.2
78008	4	790126	021236	002.32	053.30	0291.9	01.16	00.98	23.2	001.35	027.24	0195.6	01.61	36.54	002.69	071.58	0255.8	00.84	00.71	23.5
78009	0	780117	008956	007.27	080.23	0478.1	01.65	01.48	14.1	001.54	019.67	0416.1	01.10	19.62	006.34	066.23	0470.7	01.34	01.21	14.9
78009	1	780516	011093	006.70	072.60	0489.2	01.87	01.57	14.2	001.31	014.64	0422.5	01.14	19.72	006.46	063.26	0470.8	01.53	01.45	15.3
78009	2	780815	014373	006.79	079.61	0446.8	01.43	01.50	14.9	001.49	018.08	0390.2	01.01	20.95	005.76	070.82	0438.7	01.34	01.32	15.6
78009	3	781103	018563	006.17	068.13	0469.5	01.76	01.50	14.9	001.35	012.66	0411.3	00.91	20.41	006.22	066.94	0453.8	01.59	01.45	15.3
78009	4	790207	021506	006.79	062.75	0475.2	01.63	01.42	14.9	000.99	009.72	0395.4	01.02	21.43	006.72	061.36	0452.9	01.38	01.19	15.5
78010	0	780120	008207	001.53	015.04	0575.5	01.36	01.22	14.7	000.16	002.32	0437.2	01.26	20.09	000.86	005.84	0547.1	01.85	01.67	15.8
78010	1	780508	010743	002.10	019.18	0536.6	01.23	01.35	15.5	000.17	002.11	0409.8	01.56	21.44	000.98	007.35	0519.6	01.50	01.27	15.5
78010	2	780727	012713	002.33	026.35	0522.6	01.08	01.00	15.5	000.33	008.39	0413.5	00.59	20.73	001.34	013.85	0527.2	00.94	00.87	16.0
78010	3	781023	015807	001.77	016.94	0554.8	01.44	01.23	15.1	000.23	003.98	0422.3	00.97	20.66	001.10	007.09	0539.1	01.87	01.58	16.0
78010	4	790118	017521	001.90	016.74	0531.0	01.44	01.18	15.7	000.32	004.84	0388.2	00.86	22.35	001.62	014.30	0505.6	01.38	01.13	16.6
78011	0	780124	015484	000.37	000.94	0712.7	02.58	02.18	12.4	000.13	000.02	0503.8	02.33	17.59	000.59	000.79	0654.4	02.86	02.43	13.4
78011	1	780508	018711	000.45	001.64	0702.2	02.49	02.16	12.6	000.11	000.36	0505.3	02.24	17.53	000.27	000.47	0660.2	02.59	02.23	13.4
78011	2	780801	021950	000.43	001.27	0673.7	01.72	01.64	13.1	000.12	000.04	0468.6	01.83	18.91	000.66	001.57	0609.0	02.07	01.97	14.4
78011	3	781024	025600	000.47	001.58	0719.6	02.07	01.80	12.3	000.14	000.12	0516.3	02.28	17.15	000.75	002.36	0658.5	02.59	02.25	13.3
78011	4	790125	027654	000.73	002.23	0702.2	02.09	01.72	12.5	000.14	000.04	0499.1	02.32	17.75	000.97	002.02	0646.4	02.43	02.00	13.5
78012	0	780131	012797	000.83	014.79	0431.0	01.38	01.22	19.4	000.12	008.56	0268.2	02.02	31.45	000.86	010.67	0413.8	01.49	01.33	20.4
78012	1	780511	015199	000.61	013.83	0452.3	01.33	01.22	19.6	000.12	009.00	0266.6	02.03	31.55	000.59	010.33	0422.7	01.46	01.33	20.1
78012	2	780810	017113	000.59	013.78	0431.5	01.13	01.07	19.5	000.08	006.98	0264.6	01.45	32.15	000.71	009.70	0416.2	01.17	01.10	20.4
78012	3	781101	021431	000.62	013.90	0445.1	01.54	01.29	19.7	000.05	003.97	0285.0	01.31	30.43	000.59	008.95	0422.4	01.40	01.17	20.2
78012	4	790201	023497	000.72	011.26	0438.0	02.19	01.74	19.4	000.03	003.36	0275.6	02.23	31.56	000.62	007.98	0413.0	02.18	01.73	20.7
78013	0	780131	016705	002.56	036.28	0463.1	02.52	02.14	16.8	000.54	006.58	0382.5	02.23	22.47	002.35	029.71	0434.5	02.29	01.95	18.1
78013	1	780509	020922	002.59	036.68	0522.8	01.25	01.13	15.1	000.56	005.12	0443.8	01.37	19.55	002.68	037.24	0489.2	01.13	01.02	15.9
78013	2	780802	025187	002.34	038.72	0531.0	01.17	01.12	14.8	000.57	007.10	0452.4	01.23	19.06	002.32	038.40	0489.1	00.97	00.93	15.7
78013	3	781026	027758	002.63	036.48	0538.5	01.45	01.22	14.7	000.42	003.86	0470.7	01.45	18.55	002.84	043.71	0495.7	01.20	01.01	15.4
78013	4	790116	032013	002.59	040.31	0475.6	01.15	00.97	15.2	001.23	015.20	0386.5	00.91	21.40	002.53	034.79	0444.0	00.98	00.83	17.5
78014	0	780201	013570	000.54	015.23	0451.2	01.22	01.05	18.6	000.06	006.72	0275.1	01.71	31.03	000.41	010.31	0422.3	01.29	01.12	20.1
78014	1	780515	015803	000.41	014.25	0472.2	01.12	00.99	17.9	000.34	006.44	0280.9	01.44	30.46	000.32	009.78	0436.1	01.10	00.98	19.5
78014	2	780804	018617	000.49	011.91	0463.7	01.14	01.11	18.3	000.05	005.68	0274.9	01.40	31.23	000.36	008.74	0449.1	01.14	01.08	19.1
78014	3	781101	019779	000.58	013.39	0475.0	01.30	01.10	17.8	000.06	006.21	0283.8	01.58	30.19	000.40	009.92	0458.3	01.30	01.10	18.6
78014	4	790202	021895	000.64	017.07	0455.9	00.94	00.80	18.3	000.02	003.99	0272.5	01.03	31.80	000.35	008.36	0446.0	00.87	00.71	19.2
78015	0	780211	007129	001.09	005.45	0575.3	02.50	02.28	15.0	000.34	000.25	0454.5	02.71	19.45	000.86	002.21	0552.6	02.69	02.46	15.8
78015	1	780524	009003	001.01	004.83	0559.5	02.39	02.35	15.5	000.37	000.52	0436.1	02.33	20.24	000.96	003.00	0535.9	02.41	02.32	16.3
78015	2	780811	011962	000.92	005.94	0535.8	01.75	01.75	16.2	000.35	000.42	0423.5	01.99	20.85	000.89	002.12	0515.8	01.94	01.89	16.9
78016	0	780215	015391	000.53	002.43	0776.9	02.62	02.22	11.3	000.11	000.03	0533.1	02.43	16.62	000.57	001.48	0746.8	02.62	02.73	11.8
78016	1	780620	023752	002.46	015.90	0701.2	01.81	01.92	12.1	000.89	003.33	0492.3	01.89	17.72	002.28	010.76	0644.2	02.11	02.06	13.2
78016	2	780914	022992	002.85	024.03	0710.3	01.79	01.76	11.7	001.00	003.41	0507.9	02.06	17.17	002.51	017.98	0664.3	02.13	02.09	12.6
78017	0	780218	005606	000.69	003.96	0554.9	03.69	03.55	15.7	000.07	000.21	0404.4	04.52	21.90	000.35	000.93	0564.9	04.20	04.04	15.6
78017	1	780523	006440	000.52	004.97	0583.1	01.88	01.57	15.3	000.36	000.41	0435.0	01.96	20.35	000.20	000.90	0565.2	01.89	01.68	15.5
78017	2	780808	006938	000.64	005.42	0565.9	01.27	01.32	15.4	000.07	000.30	0419.2	01.32	21.12	000.41	002.46	0574.0	01.30	01.36	15.3
78017	3	781027	007360	000.64	004.60	0560.2	04.03	03.55	15.6	000.06	000.14	0415.9	04.61	21.30	000.23	001.64	0584.1	04.26	03.77	15.1
78017	4	790129	007703	000.67	004.49	0562.5	01.79	01.43	15.5	000.06	000.48	0398.2	01.64	22.22	000.36	002.09	0519.2	01.37	01.10	16.9
78018	0	780221	005354	003.48	061.59	0505.6	00.89	00.85	14.5	000.39	007.95	0396.7	00.85	21.61	002.67	050.31	0471.3	00.61	00.69	15.8
78018	1	780522	006868	003.89	064.84	0500.7	01.08	00.92	14.4	000.43	006.97	0411.0	01.05	20.95	002.86	051.97	0484.7	00.59	00.75	15.4
78018	2	780807	009431	003.76	062.60	0490.1	00.98	00.97	14.8	000.48	009.05	0401.0	00.83	21.28	002.65	050.22	0463.8	00.58	00.70	16.0
78018	3	781026	015324	004.00	063.85	0501.1	01.29	01.08	14.4	000.57	010.15	0422.3	01.27	20.15	002.97	052.98	0472.0	00.97	00.81	15.7
78018	4	790123	018035	003.71	061.98	0501.7	01.17	00.97	14.5	000.27	004.34	0399.1	01.09	21.80	002.97	048.53	0468.6	01.08	00.89	16.0

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

EPA NO	SEQ	DATE	ODOM	FTP HC	FTP CO	FTP CO2	FTP NOX	FTP NOXC	FTP MPG	HFET HC	HFET CO	HFET CO2	HFET NOX	HFET MPG	HS FTP HC	HS FTP CO	HS FTP CO2	HS FTP NOX	HS FTP NOXC	HS FTP MPG
78019	0	780223	026553	000.90	009.47	0572.3	02.35	02.25	15.0	000.37	000.36	0422.1	02.75	20.97	000.54	004.28	0517.0	02.15	02.11	16.2
78019	1	780531	031512	000.77	010.00	0553.8	02.51	02.13	15.5	000.39	000.74	0419.2	02.76	21.08	000.47	004.86	0527.0	02.52	02.16	16.5
78019	2	780830	037355	000.82	008.81	0595.8	01.72	01.70	14.5	000.07	000.37	0446.4	02.02	19.83	000.47	003.40	0556.3	01.55	01.62	15.7
78019	3	781201	042764	000.82	007.17	0599.6	02.06	01.82	14.5	000.11	000.45	0439.3	02.59	20.14	000.65	004.17	0555.4	01.91	01.68	15.7
78019	4	790306	045160	004.05	063.58	0522.2	01.58	01.53	14.0	000.48	004.65	0424.7	02.05	20.46	003.63	058.50	0478.1	01.43	01.39	15.2
78020	0	780224	031620	004.36	069.19	0472.2	01.66	01.62	14.9	000.42	007.77	0386.2	01.69	22.18	004.24	075.63	0431.1	01.43	01.37	15.7
78021	0	780307	017172	000.79	003.07	0577.8	02.73	02.40	15.2	000.18	000.12	0405.5	02.13	21.83	000.47	001.08	0545.5	02.49	02.18	16.1
78021	1	780601	022165	000.77	002.22	0562.3	03.13	02.78	15.5	000.19	000.09	0427.8	03.19	20.69	000.70	002.30	0538.0	03.08	02.76	16.3
78021	2	780824	028996	002.42	022.81	0572.6	02.60	02.53	14.4	000.53	000.87	0426.1	02.46	20.67	001.99	013.97	0547.2	02.44	02.37	15.4
78021	3	781113	034087	002.06	019.08	0572.2	08.79	07.14	14.6	000.41	000.68	0429.3	09.68	20.54	001.64	010.73	0550.6	08.61	06.97	15.4
78021	4	790221	041192	001.95	014.00	0574.2	03.26	02.86	14.7	000.36	000.51	0425.9	02.92	20.73	001.81	013.63	0532.3	02.35	02.59	15.8
78022	0	780302	016783	000.89	005.17	0587.9	03.42	02.89	14.7	000.13	000.21	0409.8	04.96	21.60	000.45	002.85	0549.4	03.50	03.02	15.9
78022	1	780623	020229	000.69	004.95	0545.0	02.98	02.83	15.0	000.13	000.45	0369.0	03.56	23.96	000.30	001.68	0520.5	02.82	02.72	16.2
78022	2	780918	022851	000.90	003.48	0586.1	02.32	02.08	14.9	000.17	000.14	0401.9	01.27	22.02	000.47	001.20	0548.0	02.31	02.11	16.0
78023	0	780302	018903	001.18	006.28	0545.1	03.14	02.98	15.9	000.17	000.44	0370.8	02.55	23.84	000.65	002.83	0513.8	02.91	02.74	17.0
78023	1	780607	022463	001.06	005.56	0530.5	02.25	02.27	15.3	000.16	000.15	0367.6	01.85	24.08	000.57	002.83	0505.7	02.21	02.25	17.3
78023	2	780828	026073	001.83	012.22	0548.4	02.50	02.42	15.5	000.25	000.63	0386.0	02.54	22.87	001.15	005.91	0518.8	02.43	02.35	16.6
78023	3	781120	029404	001.43	009.06	0558.6	04.00	03.24	15.4	000.20	000.28	0384.4	03.21	23.01	000.92	003.76	0511.2	03.29	02.69	17.0
78023	4	790228	033757	001.40	008.51	0565.6	03.50	02.96	15.2	000.21	000.60	0391.3	03.32	22.57	001.36	008.50	0519.3	03.09	02.61	16.5
78024	0	780302	007804	000.68	005.41	0605.0	01.88	01.59	14.3	000.09	000.74	0444.7	02.17	19.88	000.67	007.44	0565.5	02.04	01.72	15.3
78024	1	780714	011147	002.39	032.20	0560.2	01.59	01.50	14.3	000.43	007.99	0414.1	01.70	20.72	002.91	044.18	0500.6	01.11	01.13	15.3
78024	2	781009	012738	001.91	025.20	0576.2	01.55	01.52	14.3	000.32	007.28	0439.3	02.17	19.63	001.95	032.79	0535.7	01.40	01.36	14.9
78024	3	781222	013793	002.94	037.21	0580.3	02.17	01.90	13.7	000.34	004.28	0426.7	02.59	20.41	004.43	059.28	0541.3	01.58	01.37	13.6
78024	4	790323	014759	002.49	029.87	0545.4	02.02	01.71	14.8	000.38	003.98	0396.2	02.57	21.97	002.95	042.26	0510.5	01.69	01.44	15.1
78025	0	780304	011512	000.34	003.03	0611.4	01.81	01.63	14.4	000.03	000.01	0440.3	01.96	20.14	000.20	000.88	0555.5	01.71	01.56	15.9
78025	1	780622	013659	000.41	002.52	0585.6	01.53	01.55	15.3	000.34	000.01	0429.6	01.69	20.63	000.32	000.61	0556.9	01.19	01.13	15.8
78025	2	780915	017570	000.46	002.94	0602.4	01.87	01.76	14.5	000.36	000.05	0466.2	02.75	19.01	000.32	000.71	0564.0	01.62	01.48	15.6
78025	3	781212	020008	000.89	007.55	0807.5	04.60	03.49	10.8	000.05	000.04	0471.5	03.58	18.80	000.69	000.71	0554.2	02.05	01.73	15.9
78025	4	790328	022682	000.54	004.20	0581.2	01.75	01.57	15.3	000.06	000.05	0422.4	02.11	20.98	000.51	001.30	0546.9	01.58	01.51	16.1
78026	0	780303	008703	004.10	061.47	0521.2	01.68	01.36	14.1	000.57	012.79	0386.5	02.45	21.71	004.31	074.60	0473.0	01.19	00.97	14.6
78026	1	780602	008659	003.34	051.07	0470.2	01.53	01.45	13.8	000.57	012.84	0389.0	02.28	21.58	004.27	074.84	0475.2	01.14	01.11	14.5
78026	2	780823	009471	004.30	069.39	0519.3	01.44	01.38	13.8	000.59	013.85	0408.8	02.31	20.51	004.04	074.38	0484.3	01.16	01.10	14.4
78026	3	781116	014407	003.31	053.29	0511.2	02.25	01.95	14.6	000.43	007.55	0392.6	02.89	21.85	003.17	057.16	0470.9	01.62	01.43	15.5
78026	4	790222	014397	004.76	066.02	0516.2	01.91	01.66	14.0	000.66	012.05	0392.8	02.59	21.43	004.65	072.45	0505.3	01.74	01.51	13.9
78027	0	780309	026769	000.55	004.07	0555.0	02.41	02.06	15.7	000.08	000.03	0425.8	02.41	20.81	000.26	001.07	0522.8	02.23	01.92	16.8
78027	1	780608	030760	000.61	004.14	0525.3	01.90	01.78	15.5	000.39	000.31	0375.9	01.86	23.57	000.27	000.41	0490.2	01.51	01.51	18.3
78027	2	780830	035858	000.54	002.44	0540.6	01.65	01.68	16.2	000.12	000.01	0397.0	01.48	22.32	000.27	000.49	0511.3	01.48	01.55	17.2
78027	3	781214	039849	001.37	013.06	0556.2	01.79	01.53	15.3	000.12	000.37	0407.8	01.59	21.70	001.38	005.44	0543.6	01.78	01.53	15.9
78027	4	790316	044763	000.56	005.16	0516.5	01.69	01.52	16.8	000.08	000.06	0374.5	01.49	23.66	000.26	001.51	0472.4	01.47	01.32	18.6
78028	0	780323	012808	001.50	021.77	0312.6	02.74	02.54	25.2	000.47	010.64	0243.2	04.36	33.92	000.95	022.96	0295.0	01.99	01.81	26.5
78028	1	780623	015348	000.93	013.62	0313.9	02.57	02.49	25.2	000.48	007.80	0234.2	03.98	35.77	000.87	018.77	0298.2	02.21	02.15	26.3
78029	0	780310	016028	003.41	057.20	0536.3	01.71	01.42	13.9	000.36	019.79	0430.5	02.02	19.17	003.05	056.82	0496.2	01.55	01.29	14.9
78029	1	780606	018276	003.29	053.19	0529.6	01.58	01.48	14.2	000.28	002.99	0426.8	01.82	20.51	002.81	049.38	0490.3	01.57	01.46	15.3
78029	2	780825	020887	003.93	059.93	0529.0	01.35	01.27	14.3	000.39	003.48	0417.8	01.62	20.89	003.35	056.76	0502.6	01.51	01.31	14.7
78029	3	781115	022409	003.37	055.69	0505.0	01.60	01.28	14.6	000.38	003.26	0414.5	02.00	21.07	002.99	052.60	0475.9	01.64	01.32	15.6
78029	4	790228	025222	003.88	057.34	0511.0	01.74	01.50	14.5	000.42	003.57	0400.8	01.93	21.75	003.51	053.96	0487.9	01.55	01.41	15.1
78030	0	780314	015528	000.63	009.84	0553.2	01.92	01.59	15.5	000.06	000.18	0416.1	01.99	21.29	000.35	002.43	0531.3	01.87	01.57	16.5
78030	1	780622	019300	000.63	006.77	0547.2	01.78	01.58	15.8	000.07	000.36	0399.2	01.82	22.17	000.29	002.10	0519.4	01.57	01.59	16.7
78030	2	781108	022992	001.64	011.54	0575.7	01.73	01.57	14.8	000.09	000.63	0435.0	01.85	20.32	000.29	001.87	0532.9	01.58	01.46	16.5
78030	3	790215	025960	000.99	012.04	0536.8	01.97	01.53	16.3	000.08	000.39	0389.8	01.81	22.70	000.38	001.72	0486.9	01.71	01.44	18.3
78031	0	780417	023652	002.06	037.10	0452.5	01.98	01.85	17.1	000.28	001.93	0358.8	02.19	24.45	002.48	037.28	0405.3	01.66	01.57	18.7
78031	1	780717	026574	002.74	045.39	0427.1	02.12	01.98	17.5	000.42	002.93	0326.2	02.19	26.70	002.79	041.23	0376.7	01.71	01.62	19.6
78031	2	781009	029276	001.95	037.05	0471.1	02.33	02.23	15.6	000.18	001.64	0361.6	02.73	24.32	003.14	055.13	0397.1	02.02	01.91	17.9
78031	3	781224	037058	001.34	019.34	0483.6	01.98	01.72	17.1	000.18	001.22	0360.9	01.87	24.40	002.13	030.16	0425.0	01.55	01.34	18.5
78031	4	790329	040735	001.76	034.54	0451.2	02.63	02.26	17.4	000.28	002.09	0349.2	03.11	25.10	001.93	032.39	0410.7	02.26	01.95	18.9
78032	0	781109	040180	001.16	006.39	0296.2	02.91	02.45	28.6	000.76	003.75	0216.2	06.07	39.49	001.16	004.08	0289.7	04.08	02.58	29.5
78032	1	790214	045879	000.96	010.40	0316.1	03.50	02.72	25.4	000.79	005.82	0224.8	06.32	37.51	000.88	005.62	0302.6	04.16	02.81	28.2
78033	0	781114	026113	001.08	017.22	0546.5	01.83	01.49	15.9	000.07	001.52	0406.1	01.47	21.70	000.40	004.96	0528.1	01.69	01.37	16.5
78033	1	790221	028627	001.33	015.06	0530.7	01.94	01.53	15.9	000.16	003.95	0379.1	01.27	22.99	000.92	011.13	0501.4	01.58	01.33	16.9

APPENDIX E - FTP, HFET, AND HOT START FTP RESULTS

1975 - 77 EUGENE

				FTP						HFET					HS FTP					
EPA NO	SEQ	DATE	ODOM	HC	CO	CO2	NOX	NOXC	MPG	HC	CO	CO2	NOX	MPG	HC	CO	CO2	NOX	NOXC	MPG
78034	0	781211	028695	001.18	018.34	0321.5	03.34	03.05	25.0	000.80	012.80	0221.9	05.74	36.22	001.13	011.25	0298.3	03.67	03.35	27.7
78034	1	790313	031363	001.30	012.45	0262.2	02.72	02.31	31.0	000.85	009.67	0200.5	05.07	40.60	001.36	009.39	0244.3	02.63	03.22	33.6
78035	0	781221	040880	000.65	005.49	0722.5	02.02	01.76	12.1	000.14	000.20	0510.4	02.11	17.35	001.01	002.04	0640.4	02.24	01.95	13.8
78035	1	790322	043297	000.69	006.27	0732.2	02.39	02.35	11.9	000.16	000.25	0510.3	02.34	17.35	001.15	002.37	0675.8	02.50	02.26	12.9
78036	0	790104	019888	004.08	117.31	0452.4	00.88	00.71	13.7	001.47	040.28	0332.9	01.42	22.12	003.72	108.12	0442.3	00.89	00.71	14.2
78036	1	790326	022654	004.45	140.87	0452.8	00.73	00.56	12.9	001.93	052.14	0348.1	01.59	20.34	004.17	134.42	0434.1	00.72	00.65	13.4

APPENDIX F - COMPOSITE OF TEST RESULTS

Legend

IDLE - Idle Test
F3M - Fed. Three-Mode Test
FSC - Fed. Short Cycle Test
FTP - Fed. Test Procedure
HFET - Highway Fuel Economy Test
HSFTP - Hot Start FTP Test
SEQ - Location and/or Sequence

D - DEQ Station
H - HTS
0 - Initial
M - After Maintenance
1 - 1st Quarter
2 - 2nd Quarter
3 - 3rd Quarter
4 - 4th Quarter

D-L - DEQ test using laboratory instruments
H-L - HTS test using laboratory instruments
D-G - DEQ test using "garage" EPA-75 analyzer
H-G - HTS test using "garage" analyzer
HC - Hydrocarbons
    FTP, HFET, HSFTP & FCS - grams per mile
    F3M D-L & F3M H-L - ppm carbon
    Idle, F3M D-G, F3M H-G - ppm hexane
CO - Carbon Monoxide
    FTP, HFET, HSFTP & FCS - grams per mile
    Idle and F3M - percent
NO_x - Oxides of Nitrogen
    FTP, HFET, HSFTP & FCS - grams per mile
    Idle and F3M - ppm
NO_xC - Oxides of Nitrogen in grams per mile corrected for humidity
SD - Standard Deviation
QTY - Number of tests performed
MEAN ODOM - Average value of the odometer readings

APPENDIX F - COMPOSITE OF TEST RESULTS

1972 - 74 PORTLAND PASS

		HC						CO						RPM				VOX					
		1ST		2500		2ND		1ST		2500		2ND		1ST		2ND		1ST		2500		2ND	
TEST	SEQ	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDLE	D-0	126	172	90	96	152	104	1.3	1.2	.8	1.3	1.2	1.0	832	119	837	119						
IDLE	H-0	178	145	71	72	157	142	.9	1.0	.5	.8	1.0	1.0	741	109	786	114	90	39	336	271	99	40
IDLE	D-M																						
IDLE	H-M																						
IDLE	H-1	199	175	120	256	171	176	1.4	1.6	.6	.9	1.4	1.6	749	110	790	116	95	37	373	341	102	40
IDLE	H-2	281	361	171	392	235	353	1.5	1.6	.6	.9	1.5	1.6	747	124	785	128	72	21	286	231	79	26
IDLE	H-3	214	222	121	280	194	247	1.7	1.8	.5	.8	1.8	1.9	746	117	793	124	91	30	336	259	100	33
IDLE	H-4	264	415	174	387	249	401	1.8	1.9	.6	1.3	1.9	2.0	780	148	818	181	113	105	365	245	115	89

		HIGH						LOW						IDLE						
		HC		CO		NOX		HC		CO		NOX		HC		CO		NOX		
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	QTY
F3M	D-L	1488	883	.4	.6	1899	708	1864	992	.5	.9	1154	738	2187	1357	1.6	1.4	110	52	111
F3M	H-L	1575	1357	.5	.7	1751	736	1893	1309	.7	1.1	982	747	2484	1860	1.7	1.5	122	76	113
F3M	D-G	92	70	.5	.6			126	64	.6	.8			150	92	1.5	1.3			111
F3M	H-G	139	213	.6	.7			168	194	.8	1.0			227	267	1.8	1.5			113

		HC		CO		CO2		NOX		NOX C		MPG			
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN ODOM	QTY
FSC	DEQ	2.31	.91	22.19	14.78	483.8	140.9	3.64	1.63			18.26	5.47		111
FSC	HTS	2.57	2.78	21.07	15.45	455.4	134.4	2.94	1.44			19.43	5.98		113
FTP	0	2.89	2.48	32.09	16.62	571.7	172.5	3.82	1.60	3.42	1.45	15.22	4.59	54241	113
FTP	M														
FTP	1	3.16	2.82	35.00	18.23	570.2	168.1	3.85	1.62	3.49	1.46	15.10	4.53	57367	108
FTP	2	3.34	4.32	35.21	17.30	557.7	164.9	3.64	1.61	3.51	1.52	15.38	4.59	58999	106
FTP	3	3.43	4.51	38.17	19.88	555.1	158.9	3.90	1.62	3.47	1.45	15.29	4.46	61587	103
FTP	4	3.62	4.41	40.07	20.85	540.2	155.9	3.97	1.67	3.37	1.39	15.51	4.39	64227	97
HFET	0	1.25	.83	10.91	9.49	416.6	114.2	5.09	2.18			21.79	6.28	54241	113
HFET	M														
HFET	1	1.46	1.93	12.41	10.14	418.8	111.6	5.18	2.35			21.42	6.04	57367	108
HFET	2	1.82	3.99	11.80	8.35	407.9	109.8	4.86	2.24			22.00	6.22	58999	106
HFET	3	1.47	2.24	12.37	8.83	409.6	103.6	5.27	2.40			21.85	6.08	61587	103
HFET	4	1.70	2.63	13.25	9.81	397.4	102.9	5.47	2.34			22.40	6.33	64227	97
HSFTP	0	2.69	2.48	24.82	14.20	541.6	161.3	3.75	1.56	3.36	1.53	16.31	5.00	54241	113
HSFTP	M														
HSFTP	1	2.82	2.50	27.41	15.35	539.7	159.4	3.82	1.79	3.46	1.62	16.20	4.92	57367	108
HSFTP	2	3.10	4.35	28.60	15.11	528.8	155.5	3.53	1.62	3.41	1.55	16.42	5.01	58999	106
HSFTP	3	3.14	5.08	30.63	17.12	529.1	153.8	3.79	1.70	3.38	1.51	16.33	4.91	61587	103
HSFTP	4	3.21	3.79	32.68	19.10	511.9	145.5	3.81	1.54	3.24	1.39	16.57	4.69	64227	97

APPENDIX F - COMPOSITE OF TEST RESULTS

1975 - 77 PORTLAND PASS

		HC						CO						RPM				NOX					
		1ST		2500		2ND		1ST		2500		2ND		1ST		2ND		1ST		2500		2ND	
TEST	SEQ	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDLE	D-0	79	92	64	89	85	59	.5	.8	.2	.4	.3	.6	889	144	896	144						
IDLE	H-0	102	87	48	54	73	46	.3	.5	.1	.3	.2	.4	828	138	870	143	80	42	200	175	85	42
IDLE	D-M																						
IDLE	H-M																						
IDLE	H-1	136	136	53	56	95	106	.6	1.1	.2	.3	.4	.3	827	126	857	123	85	39	216	137	86	38
IDLE	H-2	141	138	56	50	113	114	.8	1.3	.2	.4	.5	1.0	815	138	859	136	67	33	173	90	69	31
IDLE	H-3	143	117	63	58	115	114	.8	1.4	.2	.3	.6	1.3	819	133	858	133	76	34	200	152	79	27
IDLE	H-4	175	287	88	214	134	276	.9	1.6	.1	.3	.7	1.3	826	153	856	141	80	29	224	193	87	39

		HIGH						LOW						IDLE						
		HC		CO		NOX		HC		CO		NOX		HC		CO		NOX		
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	QTY
F3M	D-L	636	526	.2	.5	1401	726	665	594	.2	.4	912	657	670	557	.4	.5	128	105	112
F3M	H-L	622	612	.2	.4	1312	716	703	655	.3	.5	841	677	812	1138	.5	1.3	131	113	123
F3M	D-G	49	32	.2	.5			58	41	.2	.4			60	39	.4	.5			112
F3M	H-G	60	49	.2	.4			72	52	.3	.5			90	187	.5	1.1			123

		HC		CO		CO2		NOX		NOXC		MPG		MEAN ODOM	QTY
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD		
FSC	DEQ	.98	1.36	7.55	10.77	431.8	118.2	2.62	1.54			21.26	5.54		112
FSC	HTS	.89	.48	7.66	7.36	406.0	109.1	2.17	1.32			22.52	5.79		123
FTP	0	1.21	.58	12.10	10.33	507.3	141.2	2.95	1.43	2.61	1.27	17.96	4.79	25279	123
FTP	M														
FTP	1	1.53	3.34	14.20	20.32	510.6	140.2	2.99	1.43	2.72	1.25	17.73	4.83	28441	121
FTP	2	1.40	.98	14.65	12.53	502.3	136.8	2.69	1.24	2.64	1.21	17.93	4.76	30702	115
FTP	3	1.65	1.45	16.06	13.22	510.4	142.5	2.83	1.26	2.59	1.17	17.59	4.70	33177	111
FTP	4	1.83	2.51	15.87	12.91	505.9	140.0	3.00	1.40	2.53	1.14	17.83	5.02	34618	105
HFET	0	.42	.36	4.33	8.08	369.5	112.9	3.71	1.86			25.71	7.69	25279	123
HFET	M														
HFET	1	.45	.39	4.90	8.77	378.4	115.0	3.81	1.81			25.07	7.62	28441	121
HFET	2	.48	.39	5.53	10.84	366.5	107.6	3.53	1.69			25.63	7.54	30702	115
HFET	3	.51	.36	4.98	7.62	375.8	110.7	3.69	1.76			25.05	7.38	33177	111
HFET	4	.69	1.40	4.85	8.43	370.6	113.5	3.92	1.88			25.58	7.92	34618	105
HSFTP	0	1.02	.57	8.43	8.14	482.5	134.3	2.84	1.40	2.52	1.24	19.07	5.15	25279	123
HSFTP	M														
HSFTP	1	1.37	3.23	10.19	14.60	486.6	133.5	2.88	1.43	2.62	1.27	18.73	5.11	28441	121
HSFTP	2	1.21	.78	12.46	14.15	485.8	131.0	2.69	1.50	2.63	1.43	18.58	4.88	30702	107
HSFTP	3	1.36	1.15	12.02	11.44	489.9	131.5	2.76	1.28	2.52	1.20	18.42	4.79	33177	101
HSFTP	4	1.60	2.34	12.48	12.86	487.5	133.6	2.97	1.43	2.49	1.17	18.58	5.15	34618	94

APPENDIX F - COMPOSITE OF TEST RESULTS

1972 - 74 PORTLAND FAIL

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           -------------HC------------ -------------CO------------ --------RPM-------- -------------NOX-----------
           ---1ST-- --2500-- ---2ND-- ---1ST-- --2500-- ---2ND-- ---1ST-- ---2ND-- ---1ST-- --2500-- ---2ND--
TEST SEQ MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD MEAN  SD

IDLE D-0   344 437  171 238  384 419  4.4 2.6  1.8 2.0  4.2 2.5  839 230  844 219
IDLE H-0   373 478  146 194  365 491  3.3 2.3  1.2 1.6  3.5 2.4  792 195  826 193  108  36  323 186  112  32
IDLE D-M   142 158  123 186  190 174  1.1 1.2  1.0 1.2   .9  .8  828 142  830 142
IDLE H-M   231 251  107 178  198 234   .9 1.0   .8 1.2   .9 1.0  745 124  777 121   93  34  316 194  101  33
IDLE H-1   262 263  114 162  233 251  1.7 1.9   .9 1.2  1.8 2.0  766 147  790 142  103  42  334 196  106  38
IDLE H-2   323 375  143 248  268 327  1.9 2.4  1.0 1.2  2.0 2.3  754 127  793 127   86  28  262 267   94  35
IDLE H-3   279 336  124 215  230 290  1.7 2.0  1.0 1.2  1.7 2.0  765 155  795 141   93  34  294 121  107  51
IDLE H-4   304 385  157 289  313 427  1.8 1.9  1.0 1.2  1.7 2.0  747 137  778 170  100  31  315 153  105  36


           ------------HIGH-----------  ------------LOW------------  ------------IDLE-----------
           ---HC---- ---CO--- ---NOX--  ---HC---- ---CO---- ---NOX--  ---HC---- ---CO--- ---NOX--
           MEAN   SD MEAN  SD MEAN  SD  MEAN   SD MEAN   SD MEAN  SD  MEAN   SD MEAN  SD MEAN  SD  QTY

F3M  D-L  1800 1141   .5  .6 1876 671  2395 1228  1.0  1.2 1110 672  4100 2542  4.0 2.4   80  52  102
F3M  H-L  1865 1416   .6  .7 1881 658  2512 1469  1.2  1.7 1065 622  4550 2644  4.3 2.7   99  61  105
F3M  D-G   120  193   .6  .6            174  194  1.0  1.1            305  311  3.7 2.2            102
F3M  H-G   148  169   .7  .7            214  201  1.3  1.5            373  364  4.3 2.8            104


             ----HC----  ----CO----  ----CO2---  ---NOX---  ---NOXC--  ---MPG---   MEAN
             MEAN    SD  MEAN    SD  MEAN    SD  MEAN   SD  MEAN   SD  MEAN   SD   ODOM   QTY

FSC   DEQ    3.64  5.75 39.73 29.11 440.8 129.9  3.33 1.44             18.72 5.48          102
FSC   HTS    3.36  3.65 38.55 30.10 417.0 129.5  2.75 1.11             19.88 6.01          106

FTP    0     4.06  3.86 54.85 37.47 513.1 162.5  3.61 1.31  3.17 1.16  15.78 4.70  54286  106
FTP    M     3.00  2.84 34.50 18.11 537.8 180.5  3.66 1.32  3.25 1.17  16.22 5.09  55872   95
FTP    1     3.51  3.13 41.52 27.27 533.9 172.5  3.56 1.30  3.30 1.17  15.90 4.74  57722   94
FTP    2     4.08  5.73 42.95 26.24 525.5 167.2  3.45 1.22  3.28 1.18  16.00 4.82  60445   91
FTP    3     3.95  5.00 43.78 24.45 531.1 154.7  3.62 1.37  3.17 1.22  15.65 4.47  62770   84
FTP    4     4.05  4.45 45.92 24.63 512.6 155.1  3.40 1.33  2.89 1.11  16.07 4.67  64326   77

HFET   0     1.77  2.29 16.15 18.23 393.3 111.9  5.13 2.47             22.60 6.56  54286  106
HFET   M     1.44  1.95 12.78 10.23 401.2 124.8  4.88 1.87             22.70 6.81  55872   95
HFET   1     1.61  1.95 14.16 10.49 398.3 116.6  4.88 1.80             22.47 6.29  57722   94
HFET   2     2.04  4.07 16.46 23.35 390.5 113.4  4.60 1.75             22.71 6.51  60445   91
HFET   3     1.84  3.16 14.33 11.00 398.7 109.7  4.96 1.87             22.32 6.28  62770   84
HFET   4     2.12  3.49 15.75 12.32 387.1 115.5  4.68 1.99             22.95 6.68  64326   77

HSFTP  0     3.62  3.31 45.29 29.60 490.8 154.4  3.52 1.33  3.10 1.18  16.80 5.01  54286  106
HSFTP  M     2.77  3.16 26.00 15.91 510.3 169.3  3.51 1.26  3.12 1.12  17.36 5.42  55872   95
HSFTP  1     3.06  2.90 32.96 22.96 506.8 161.4  3.37 1.21  3.13 1.10  16.96 4.97  57722   94
HSFTP  2     3.56  4.76 33.94 20.87 501.9 160.2  3.34 1.16  3.17 1.10  17.05 5.15  60445   91
HSFTP  3     3.48  4.58 35.06 21.86 505.2 145.4  3.53 1.31  3.08 1.15  16.73 4.80  62770   84
HSFTP  4     3.84  4.90 35.30 21.61 490.9 147.8  3.37 1.39  2.87 1.15  17.18 5.07  64326   77
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APPENDIX F - COMPOSITE OF TEST RESULTS

1975 - 77 PORTLAND FAIL

		HC						CO						RPM				NOX					
		1ST		2500		2ND		1ST		2500		2ND		1ST		2ND		1ST		2500		2ND	
TEST	SEQ	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDLE	D-0	334	352	148	154	343	336	3.5	2.7	.9	1.7	3.3	2.4	917	312	936	338						
IDLE	H-0	360	383	125	196	332	393	2.9	2.6	.6	1.2	3.0	2.7	815	183	861	216	96	32	236	159	98	30
IDLE	D-M	76	77	61	52	97	74	.3	.6	.4	1.0	.3	.5	847	147	857	160						
IDLE	H-M	117	96	55	53	90	100	.2	.3	.2	.8	.2	.4	772	134	796	162	82	34	215	144	88	40
IDLE	H-1	165	183	67	68	147	189	.5	1.3	.3	.6	.5	1.4	778	160	794	172	87	40	245	172	92	38
IDLE	H-2	206	301	100	176	193	304	.8	1.6	.3	.6	.8	1.7	781	153	810	139	87	27	239	184	87	23
IDLE	H-3	195	226	80	107	185	236	1.0	1.8	.2	.5	1.0	1.8	793	155	832	149	82	25	216	134	89	29
IDLE	H-4	192	214	70	82	179	230	1.0	1.8	.2	.5	1.1	2.0	780	125	819	140	98	72	265	183	105	70

		HIGH						LOW						IDLE						
		HC		CO		NOX		HC		CO		NOX		HC		CO		NOX		
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	QTY
F3M	D-L	905	821	.3	.9	1418	735	1135	1058	.5	.9	806	543	3337	2288	3.6	2.7	100	95	114
F3M	H-L	907	855	.5	1.0	1289	707	1325	1341	.8	1.3	709	525	3852	2690	3.8	2.9	103	93	133
F3M	D-G	69	49	.4	.9			92	76	.5	.8			270	284	3.3	2.5			114
F3M	H-G	84	70	.5	1.0			124	119	.9	1.4			342	336	3.9	2.9			134

		HC		CO		CO2		NOX		NOXC		MPG		MEAN	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	ODOM	QTY
FSC	DEQ	2.02	1.50	26.03	24.47	438.9	110.5	2.36	1.24			19.36	5.00		114
FSC	HTS	2.19	2.10	28.93	27.27	404.0	106.3	1.89	1.09			20.63	5.14		134
FTP	0	2.68	2.10	38.48	26.00	507.5	120.6	2.80	1.40	2.47	1.19	16.26	4.12	25289	134
FTP	M	1.52	.78	19.23	17.16	536.5	133.4	2.88	1.52	2.56	1.42	16.50	4.40	26205	117
FTP	1	2.09	4.09	20.53	19.85	527.4	138.1	2.76	1.55	2.47	1.36	16.67	4.39	28941	114
FTP	2	1.91	1.79	22.75	20.36	520.8	130.8	2.62	1.36	2.51	1.31	16.71	4.27	31644	106
FTP	3	1.97	1.34	24.00	20.17	516.3	128.0	2.86	1.42	2.51	1.26	16.76	4.28	34215	98
FTP	4	2.13	1.63	25.73	21.44	509.7	127.3	2.76	1.49	2.38	1.29	16.85	4.27	35725	93
HFET	0	.63	.56	8.83	14.44	392.5	97.7	3.55	1.89			23.25	6.64	25289	134
HFET	M	.51	.57	7.34	14.13	400.7	100.3	3.54	2.16			22.99	6.80	26205	117
HFET	1	.94	3.24	7.72	14.09	395.0	99.8	3.45	2.08			23.15	6.64	28941	114
HFET	2	.66	.88	7.89	14.61	389.5	97.6	3.37	1.88			23.48	6.69	31644	106
HFET	3	.62	.67	7.64	12.62	393.8	96.8	3.78	2.14			23.18	6.46	34215	98
HFET	4	.70	.73	8.90	14.82	386.0	97.9	3.54	2.12			23.67	6.98	35725	93
HSFTP	0	2.23	1.66	33.40	26.34	482.2	113.1	2.62	1.34	2.32	1.15	17.25	4.27	25289	134
HSFTP	M	1.18	.78	14.35	16.24	506.2	123.2	2.71	1.52	2.41	1.40	17.60	4.54	26205	117
HSFTP	1	1.82	3.85	16.01	19.01	499.4	123.1	2.68	1.51	2.39	1.31	17.64	4.40	28941	114
HSFTP	2	1.72	1.86	18.55	19.25	490.7	123.7	2.43	1.17	2.33	1.13	17.85	4.51	31644	105
HSFTP	3	1.69	1.39	20.01	20.03	489.1	121.5	2.74	1.36	2.37	1.18	17.82	4.54	34215	88
HSFTP	4	1.83	1.49	20.83	20.91	474.7	114.9	2.55	1.34	2.18	1.14	18.21	4.53	35725	83

APPENDIX F - COMPOSITE OF TEST RESULTS

1972 - 74 EUGENE

		HC						CO						RPM				NOX					
		1ST		2500		2ND		1ST		2500		2ND		1ST		2ND		1ST		2500		2ND	
TEST	SEQ	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDLE	D-0	195	180	161	243	241	196	3.2	2.5	1.2	1.5	3.0	2.4	875	202	879	201						
IDLE	H-0	248	207	136	224	223	190	2.9	2.3	.8	1.5	3.0	2.5	793	160	835	169	99	36	342	268	104	36
IDLE	D-M																						
IDLE	H-M																						
IDLE	H-1	301	378	146	249	269	327	2.3	2.1	.9	1.1	2.4	2.2	787	147	810	140	93	33	342	255	96	33
IDLE	H-2	286	223	168	290	251	201	2.8	2.3	.9	1.1	2.7	2.2	781	127	807	126	86	19	357	189	87	28
IDLE	H-3	289	325	142	240	263	321	2.5	2.3	.8	1.2	2.5	2.3	785	133	821	138	91	29	297	163	98	29
IDLE	H-4	303	291	153	250	282	316	2.4	2.1	.6	1.0	2.3	2.1	783	125	825	147	101	31	307	193	106	31

		HIGH						LOW						IDLE						
		HC		CO		NOX		HC		CO		NOX		HC		CO		NOX		
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	QTY
F3M	D-L	1630	821	.4	.6	2025	604	2285	1138	1.0	1.2	1129	636	3488	2280	3.7	2.6	86	43	111
F3M	H-L																			
F3M	D-G	98	57	.5	.6			162	112	1.0	1.2			234	172	3.4	2.5			111
F3M	H-G																			

		HC		CO		CO2		NOX		NOX C		MPG			
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN ODOM	QTY
FSC	DEQ	2.79	1.41	35.40	25.32	455.5	137.8	3.56	1.61			18.45	5.45		111
FSC	HTS														
FTP	0	3.58	2.61	47.95	34.45	524.4	168.1	4.11	2.22	3.63	1.93	15.71	4.54	55252	113
FTP	M														
FTP	1	3.22	1.66	40.41	22.68	539.3	162.7	3.98	1.68	3.70	1.54	15.60	4.52	56855	98
FTP	2	3.20	1.55	44.87	24.46	538.6	163.4	3.74	1.49	3.56	1.47	15.46	4.48	60319	93
FTP	3	3.37	2.43	42.15	25.28	552.3	166.6	4.12	1.94	3.52	1.67	15.26	4.67	62607	88
FTP	4	3.35	3.15	40.52	27.31	542.1	163.0	3.95	1.75	3.40	1.46	15.66	4.92	62862	80
HFET	0	1.35	.80	13.33	16.63	393.1	114.5	5.41	2.08			22.90	6.56	55252	113
HFET	M														
HFET	1	1.34	.94	11.52	10.25	403.9	115.1	5.44	2.27			22.41	6.41	56855	98
HFET	2	1.35	.95	12.71	11.45	400.4	111.3	5.17	2.03			22.50	6.51	60319	93
HFET	3	1.37	1.65	11.14	10.73	409.5	111.1	5.48	2.50			22.19	6.68	62607	88
HFET	4	1.43	2.25	12.33	15.71	396.9	106.3	5.10	2.14			22.74	6.77	62862	80
HSFTP	0	2.98	1.55	39.97	29.16	499.2	161.9	3.90	1.71	3.46	1.51	16.79	4.90	55252	113
HSFTP	M														
HSFTP	1	2.94	1.61	35.02	21.41	511.3	152.6	3.84	1.68	3.59	1.55	16.58	4.86	56855	98
HSFTP	2	2.94	1.49	38.82	21.52	511.1	153.4	3.61	1.47	3.45	1.44	16.42	4.82	60319	93
HSFTP	3	3.04	2.45	35.29	21.43	519.1	152.2	4.03	1.97	3.44	1.71	16.42	5.13	62607	88
HSFTP	4	3.16	3.00	36.69	25.93	504.8	145.5	3.75	1.52	3.23	1.36	16.74	5.18	62862	80

APPENDIX F - COMPOSITE OF TEST RESULTS

1975 - 77 EUGENE

		HC						CO						RPM				NOX					
		1ST		2500		2ND		1ST		2500		2ND		1ST		2ND		1ST		2500		2ND	
TEST	SEQ	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
IDLE	D-0	146	134	96	133	173	164	1.8	2.2	.4	1.2	1.7	2.2	888	158	896	172						
IDLE	H-0	171	132	65	62	154	148	1.4	1.8	.2	.7	1.4	2.0	829	160	849	129	86	32	212	140	89	33
IDLE	D-M																						
IDLE	H-M																						
IDLE	H-1	208	192	70	59	178	189	1.6	2.2	.3	1.0	1.5	2.3	814	134	842	128	87	41	237	207	90	40
IDLE	H-2	227	194	76	62	186	159	1.8	2.5	.4	1.0	1.5	2.2	807	125	836	123	86	34	275	185	88	30
IDLE	H-3	237	218	87	88	205	203	1.6	2.3	.3	.7	1.4	2.1	793	163	811	122	74	24	191	116	77	30
IDLE	H-4	283	237	93	92	234	218	1.8	2.3	.4	1.0	1.7	2.3	796	135	820	130	99	88	253	178	95	36

		HIGH						LOW						IDLE						
		HC		CO		NOX		HC		CO		NOX		HC		CO		NOX		
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	QTY
F3M	D-L	782	791	.3	1.1	1410	743	934	868	.4	.9	855	576	1844	1980	1.9	2.5	122	112	107
F3M	H-L																			
F3M	D-G	59	54	.3	.9			77	62	.4	.9			137	127	1.8	2.2			107
F3M	H-G																			

		HC		CO		CO2		NOX		NOXC		MPG		MEAN	
		MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	ODOM	QTY
FSC	DEW	1.43	1.18	18.62	27.26	429.9	110.8	2.65	1.56			20.46	5.38		107
FSC	HTS														
FTP	0	1.91	1.98	25.25	28.94	499.7	134.1	3.00	1.51	2.69	1.40	17.41	4.73	24860	126
FTP	M														
FTP	1	1.84	1.38	25.25	33.38	497.5	137.5	3.04	1.71	2.73	1.53	17.56	4.94	27883	113
FTP	2	1.96	1.30	26.82	30.87	501.2	130.2	2.65	1.41	2.53	1.32	17.20	4.58	30940	95
FTP	3	2.04	1.34	27.99	32.44	506.1	134.0	3.11	1.59	2.71	1.33	17.02	4.56	34120	78
FTP	4	2.16	1.44	28.21	31.06	486.0	123.2	2.99	1.52	2.51	1.34	17.56	4.54	36745	75
HFET	0	.52	.60	6.99	20.89	377.0	109.1	3.76	1.98			24.71	7.32	24860	126
HFET	M														
HFET	1	.60	.84	7.89	25.58	376.0	110.2	3.88	2.27			24.80	7.60	27883	113
HFET	2	.61	.79	8.43	25.96	378.4	106.7	3.37	1.96			24.47	7.38	30940	95
HFET	3	.62	.78	8.88	27.66	381.9	106.0	3.80	2.12			24.16	7.13	34120	78
HFET	4	.66	.89	9.07	26.76	361.5	98.6	3.71	2.15			25.34	7.28	36745	75
HSFTP	0	1.53	1.13	21.35	27.57	473.4	125.6	2.86	1.44	2.56	1.32	18.51	5.03	24860	126
HSFTP	M														
HSFTP	1	1.61	1.23	21.43	31.56	472.2	128.2	2.85	1.56	2.57	1.40	18.60	5.14	27883	113
HSFTP	2	1.69	1.18	25.00	30.10	476.2	123.1	2.53	1.34	2.42	1.26	18.20	4.77	30940	95
HSFTP	3	1.85	1.24	25.19	31.93	475.9	121.5	2.97	1.51	2.60	1.30	18.10	4.80	34120	78
HSFTP	4	1.94	1.30	25.02	29.94	459.6	116.4	2.83	1.50	2.38	1.24	18.64	4.84	36745	75